EMOTIONAL HABITUATION TO FILMED VIOLENCE

EMPLOYING THE STARTLE PROBE RESPONSE.

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Psychology (Health) Degree.

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October 2002.
I certify that the thesis entitled

**Emotional Habituation to Filmed Violence employing the Startle Response**

submitted for the degree of

**Doctorate of Psychology (Health)**

is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

I also certify that any material in the thesis which has been accepted for a degree or diploma by any other university or institution is identified in the text.

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Abstract

This thesis reports on research examining the habituation of emotional variables to filmed violence. The following subjective emotional variables were assessed: positive feelings, anxiety, disgust, entertainment and anger. In addition, an objective measure of emotional response was recorded physiologically, using the startle eyeblink response. The mediating influence of personality, individual differences and contextual features on an individuals' perception of and reaction to filmed violence were also explored.

Study one was exploratory in nature served to identify and select the film stimuli to be employed in the subsequent studies. The primary aim of the study was to allow for the identification of violent stimuli considered to be most socially and culturally relevant. The present research builds on existing scientific literature which has began to appreciate that differences in the context of a portrayal holds important implications for its impact on viewers. Thus, a secondary and more specific desire of study one was to obtain an evaluation of the contextual features of the violent film segments. A sample of 30 participants viewed and rated the film stimuli on the variables of realism, fantasy and violence. From this exploratory study four violent film stimuli were subsequently employed.

Study 2 used the eyeblink startle response proposed by Vrana, Spence and Lang (1988) to explore the habituation of emotional variables to a realistic depiction of filmed violence. Emotional response was assessed both objectively, using the eyeblink startle response and subjectively through individuals self-reports. In addition the study investigated the significance of individual differences as mediators of emotional response. Questionnaire and physiological data were obtained from 30 participants. Overall, repeated exposure to filmed violence resulted in a decline in both objective and subjective emotional response. Differences were identified in the manner in which men and women responded to the film. Women reacted initially and over time with more intense physiological and psychological reactions to the
violent film than males. Specifically, men displayed more curiosity and reported greater entertainment and positive feelings in response to the film, whilst women found the violence more disgusting and reported higher levels of anger and anxiety. It was found that the eyeblink startle magnitude paralleled the subjective emotional processing of the violent film, thus providing further confirmatory evidence of its validity in the investigation of emotional reactions to a stimulus. Personality factors were found to mediate emotional response to filmed violence, with neuroticism most powerfully implicated. High levels of neuroticism were found to be associated with greater anger and anxiety and less positive feelings whilst viewing violent film. A high score on extraversion was correlated with higher levels of anger and lower levels of curiosity and entertainment.

Whilst the aims of study 3 were identical to that of study 2, a variation in the contextual feature of the violent film stimuli under investigation was the distinguishing and pertinent feature. Study 2 provided data on the habituation of emotional response to a realistic depiction of filmed violence. Study 3 was concerned with emotional response over repeated exposure to a fantasized violent depiction. Therefore, allowing for a comparison regarding the effects of context on emotional response. The results of study 3, with respect to habituation of emotional response, personality and individual differences, were similar to that obtained in study 2. A comparison of the two studies, however, revealed that individuals responded significantly different to the contextual features of the violent portrayal. Compared to the fantasised portrayal the realistic film stimulus was reported to be more disgusting, anxiety provoking and less entertaining. In addition, and not surprisingly respondents reported that the realistic portrayal resulted in the production of more anger and less positive feelings.
CHAPTER 1.

INTRODUCTION

Television and film will be the test of the modern world for in this new opportunity to see beyond the range of our vision we shall experience either a new and terrible disturbance of the general peace or a saving radiance in the sky. We shall stand or fall by television.

E. B. White, 1938 (1)

1.1 An Agenda for Research

Interest in the effect of viewing film violence on subsequent behaviour has extended across the past four decades (Bandura, Ross & Ross, 1963; Bushman & Geen, 1990; Drabman & Thomas, 1974; Huesmann & Malamuth, 1986; Pennell & Browne, 1999). Cataclysmic events have forced the public to grapple with issues that researchers have long been exploring. For example, the Littleton, Colorado, shootings shocked society into renewed concern about the role that media violence may be playing in the adoption of violent attitudes and behaviours by individuals (Hogan, 2000). In the aftermath, mass communication scholars have pointed to a wealth of information based on more than 40 years of research regarding the negative effects of media violence. The primary focus of the current thesis is concerned with the identification of individuals emotional response to filmed violence. Secondary to this is a desire to explore the habituation of emotional variables, which is observable in reduced arousal, over repeated presentation of the filmed violence.

Viewing violent films has been shown to result in a variety of health and social problems. For example, researches regarding the effects of violence have primarily focused upon demonstrating changes in viewers’ overt behaviour as a function of prior exposure to violence. Meta-analyses show that viewing violence is associated with higher levels of antisocial behaviour, ranging from the trivial (imitative violence
directed at toys) to the serious (criminal violence), with many consequential outcomes in between (acceptance of violence as a solution to problems, increased feelings of hostility and the apparent delivery of painful stimulation to another person (Paik & Comstock, 1994).

Both governmental and professional organisations have conducted exhaustive reviews of the scientific literature to ascertain the relationship between exposure to media violence and aggressive behaviour (i.e. American Medical Association, 1996; American Psychological Association, 1993; National Institute of Mental Health, 1982; U. S. Surgeon General, 1972). There is an overwhelming consensus in the scientific literature about the unhealthy effects of media violence. These investigations have documented consistently that exposure to media violence contributes to aggressive behaviour in viewers (Moore & Cockerton, 1996). Furthermore it has been illustrated that perceptions and attitudes about violence in the real world can be influenced following exposure to media violence (Donnerstein, Slaby, & Eron, 1994; Geen & Donnerstein, 1998).

Research conducted over the past 40 years leads to the inescapable conclusion that violence does affect viewers’ attitudes, values and behaviour (Comstock & Paik, 1991; Hearold, 1986; Murray, 1994: Paik & Comstock, 1994; Wilson et al., 1998). Empirical evidence collected and analysed by the National Television Violence Study 2 (Wilson et al., 1998) suggests that there are three main primary types of effects from viewing violence: (1.) aggression; viewing violence can lead to increases in aggressive behaviour and/or changes in attitudes and values favouring the use of aggression, (2.) desensitization; prolonged viewing of violence can lead to emotional desensitization toward victims of violence and a greater willingness to tolerate increasing levels of violence in society, and (3.) fearfulness; extensive
exposure to television violence may contribute to unrealistic fears about the likelihood of being targeted by a violent assailant.

Although the scientific body increasingly understands that filmed violence contributes to these three primary types of effects, it appears as though the understanding of other anti-social effects from viewing violence is limited. Another potentially anti-social effect from viewing violence is that of habituation of emotional variables. The current research is particularly interested in examining the effect of prolonged viewing of violence on emotional variables. This will be achieved by examining individuals' emotional response to repeated exposure of filmed violence employing the habituation paradigm. Research investigating the effects of filmed violence have defined emotional response subjectively as disgust, positive feelings, anxiety, entertainment, boredom and anger (Koukounas & McCabe, 2000). This definition of emotional response will be adopted in the current study to assess habituation to filmed violence. These six emotional variables will be recorded using a 5-point Likert scale. Recently, researchers have acknowledged that an objective measurement of emotional arousal is needed. A tool for measuring the nature of this emotional arousal during stimulation is the eyeblink startle reflex response. The eyeblink startle response consists of a set of involuntary responses, which can be influenced by prevailing emotional states (Vrana, Spence & Lang, 1988).

There now have been many demonstrations (see Filion et al., 1998) that the magnitude of the eyeblink startle response evoked by a burst of intense white noise (probe stimulus) varies as a function of the emotional valence of the stimulus to which the subject is attending at the time (primary stimulus). Emotional content is categorized as either appetitive (pleasant) or aversive (unpleasant). The eyeblink startle response is augmented when the attended to (primary) stimulus and the unexpected probe match in affective content, and diminished when they differ in
emotional content. Startle stimuli are aversive in nature, subsequently one would expect the startle response to be diminished when the expected probe is presented while the subject is attending to appetitive (pleasant) stimulation, and augmented when the probe is presented while the subject is attending to aversive stimulation. Consistent with this expectation, a study conducted by Koukounas and McCabe (2000) demonstrated that the eyeblink startle response was magnified during the experience of aversive film segments, indicating that respondents experienced a negative emotional response to the violent film. The current research will examine the habituation of emotional responses to violent film over repeated exposures, both through self-report and through the use of the eyeblink startle response, and will determine whether these findings are different for males and females.

Whilst the primary aim of the current thesis was to assess the process of emotional response to filmed violence, a secondary aim was generated and guided by the literature, which indicated that not all violence poses the same degree of risk (Wilson et al., 1998). The context in which violence occurs may vary in many important ways, which can subsequently have crucial implications for their impact on the audience. Some aspects of violent depictions may increase the risk of a negative effect, where others may decrease that risk. It is essential to evaluate the contextual features of any violent portrayal in order to fully appreciate its likely impact on the audience (Brown & Cantor, 2000). The implication of this knowledge regarding the impact of contextual features on the structure and understanding of the current thesis are crucial. The current research will initially assess the process of emotional habituation to filmed violence. The initial study will employ a realistic depiction of violence and assess the process of emotional response. The second study will use a fantasized depiction of violence to investigate the process of emotional response. The thesis will then examine the effect of fantasy and realism by comparing and
contrasting the obtained results, which examined emotional response separately by contextual features.

Although the bodies of research on the physical effects of viewing violence are extensive and fairly coherent in demonstrating systematic patterns of influence, researchers efforts have began to focus attention on other less studied consequences of media exposure, the promotion of interpersonal callousness, incivility, and lack of empathy all of which are hypothesised to occur due to reduced emotional arousal. This thesis seeks to explore the process of habituation of emotional variables to film violence.

At the outset this research project has two primary goals: to examine the effect of repeated exposure to violent portrayals on viewers’ level of emotional arousal, as well as identifying the effect of violent portrayals that differ with respect to their contextual features. Research on desensitisation to violence has shown that although observers react initially with relatively intense physiological and psychological responses to scenes of violence, habituation can occur over prolonged or repeated exposure, and this habituation can carry over to other settings (Berger, 1962; Gunter, 1990; Lazarus & Alfert, 1964; Thomas, Horton, Lippincott, & Drabman, 1977; Wilson et al., 1998). Anecdotal data suggest that increases in violent behaviour may result from a decrease in the viewer’s anxiety regarding the violent behaviour. Consequently, the frequent portrayal of violence may result in a gradual numbing of emotional responses to subsequent displays of aggression both on film and in real life.

Specifically, a process of habituation is proposed, which suggests that an individual may experience a systematic decrease in the magnitude of both physiological and psychological response upon repeated presentations of film violence (Thompson & Spencer, 1966). Due to the prominence of the social learning theory, however,
empirical investigations of this habituation hypothesis are lacking. This is surprising, given that the effect of habituation has been demonstrated experimentally for a large number of species across a range of response systems (Peeke & Herz, 1973).

Habituation studies have been conducted in a wide range of clinical examinations. For example, habituation has been studied extensively for autonomic response systems, such as skin conductance, (e.g., Eisenstein, Bonheim, & Eisenstein, 1995) and heart rate (e.g., Morrow & Steinhauser, 1995). Habituation research has also been conducted in an effort to understand the human infants ability of visual discrimination (e.g., Slater, Morison, & Somers, 1988). Habituation studies have also been employed to examine the effects of novel stimulation on adolescent mating behaviour (e.g., Dewsbury, 1981) and sexual arousal (e.g., Laan & Evaraerd, 1995). The current study will further extend this long list of examinations to include the assessment of habituation of emotional variables to film violence.

Although the corpus of literature about the effects of filmed violence are impressive and continually growing, researchers recognize that there still remains some significant gaps (Walsh, 2000). It has been recognized that media violence is only one area of influence crucial to explore if we are to fully appreciate the role the current media environment may be playing in the development of today’s individuals (Brown & Cantor, 2000). The role and impact of personality variables and individual difference deserve scrutiny and further investigation in the context of the mass media.

1.2 Thesis Aims

In sum, there is a dearth of research to date that has empirically assessed the role of habituation to film violence, and little research to date has employed the eyeblink
startle response to assess habituation to violence. The aim of the present research is to examine the relationship between viewing filmed violence and habituation of subjective and objective emotional response.

In addition, this study attempts to further investigate the practical utility of the eyeblink startle response as an objective measure of emotional functioning. To achieve this both the subjective self-report and objective startle eyeblink physiological data will be compared. Furthermore the impact of gender and individual differences will also be explored to examine their influence on the habituation of emotional variables to filmed violence. The thesis will also assess the impact of two specific contextual features, fantasy content (non-realistic) and degree of realism, on the process of habituation.

1.3 Outline of Thesis Chapters

The present thesis will review the theoretical literature relevant to film violence in Chapter 2. Specifically, the current conceptualisation and operationalisation of film violence will be reviewed. The impact and contribution of film violence on society, looking at the implications of violence on society and the theoretical explanations proposed for the effects of violence, will also be explored. As the notion of film genre is important in relation to the effects of film violence, Chapter 2 also provides an outline of the implications of film genre and introduces the contextual features under examination in this thesis.

A literature review of issues pertaining to habituation methodology is provided in Chapter 3. Firstly, this thesis will conceptualise the process of habituation and highlight the methodological issues that need to be considered in assessment. Chapter 4 provides an outline and introduction to the human eyeblink startle response and demonstrates how it can be applied to assess habituation of the emotional variables to violence. In addition the theoretical rationale for the use of
the human eyeblink startle response as an objective measure of emotions will be provided. Following a presentation of the postulated conceptual links between the filmed violence, emotional response and habituation, several objectives and hypothesis derived from this review will be presented in Chapter 5.

Chapters 6 – 8 presents the three studies. Chapter 6 presents the first study, which was exploratory in nature and provides the foundations on which the subsequent two studies were based. The aim of the first study was to identify and select a range of appropriate film stimuli to be employed. The results of the exploratory study produced the four violent film segments. Chapter 7 presents the second study, which examined the habituation of emotional variables, using the startle eyeblink response to a realistic depiction of filmed violence. It was identified that, with repeated exposure, both subjective and objective measures of emotional response demonstrated habituation. Given the knowledge that individuals demonstrated habituation of emotional response to a realistic depiction of filmed violence, the third study attempted to assess emotional response to a fantasized depiction. Chapter 8, presents the third study, which further examined the habituation of emotional variables using the startle eyeblink response. In addition, however, the design of the third study was expanded to explore and contrast the effects of film genre on the process of emotional response and habituation.

Finally, Chapter 9 examines the comparative results of the studies in relation to previous research findings. In particular, Chapter 9 examines the overall results which identified that the process of emotional habituation varied depending upon the presented contextual feature. The implications of the findings that contextual features can affect the process of emotional response are discussed. Chapter 9 also
examines design limitations, and outlines suggestions for future research, as well as the implications of the thesis findings.
CHAPTER 2.

FILM VIOLENCE

2.1 Definitions of violence

There have been numerous attempts to operationalise “violence”. The struggle to define violence is derived from changing generational and individual opinions. What one person considers violent, another may not, and how one is affected by violent images may vary from one person to the next. Violence, therefore, represents a statement of values in society and requires an understanding of people’s reaction to violent images. These issues were highlighted in a submission to the 1993 Standing Committee on Communication and Culture by Professor Eileen Saunders, who noted that “… our definition of what we mean by violence is problematic. We need to ask what makes an image a violent image. This is a social judgment, which changes over time … how do we distinguish what people are watching on prime-time news every night at nine from the violence they see within the multiplex cinema?” (Media Awareness Network, MAN, 1998, p. 15).

Consequently, the outcome of much of the debate over defining violence has been to leave the effort of defining violence to individuals (MAN, 1998). As a result, each study on violence contains a unique perspective on the meaning of violence. In addition, it appears that violence has become such a widely used term that few authors even consider defining it (e.g., Huesmann & Malamurth, 1986; Linz, Penrod & Donnerstein, 1986; Moore & Cockerton, 1996; Pennell & Browne, 1999; Rule & Ferguson, 1986).
Recently, however, it appears that a common definition of violence has emerged which places emphasis on three key elements: intention to harm, the physical nature of harm, and the involvement of animate beings. Wilson et al., (1998) define violence as “any overt depiction of a credible threat of physical force, or the actual use of such force intended to physically harm an animate being or group of beings. Violence also includes certain depictions of physically harmful consequences against an animate being or group that occur as a result of unseen violent means” (Wilson et al., 1998, p. 21). This definition is consistent with that provided with Anderson and Bushman (2001) who state that violent acts are extreme forms of aggression (e.g., murder, aggravated assault, forcible rape, robbery). The three key components of Wilson et al., (1998) definition - intentionality, physical harm, and animate beings - warrant some further explication. Intentionality is the most important aspect of the definition. If intentionality was excluded, then an abundance of harmful behaviours not normally considered aggressive would qualify as violence. For example, all accidental harm (e.g., slips, mishaps) and practical jokes (i.e., pie in the face) would be considered as violent.

According to the definition, the use of force must be intended to physically harm an animate being or group of beings. This definition insures that depictions classified as violent represent actual physical aggression directed against living beings. Wilson et al., (1998) state that such “physical action lies at the heart of any conception of violence, and limiting our definition to this type of portrayal (as opposed to including, for example, verbal aggression that might cause emotional harm) renders it a conservative measure of violence” (p. 21). The final qualification of the definition is that the perpetrator of violence must be an animate being. Although it is recognised that many types of acts may cause fear (e.g., a killer whale devouring a seal, natural disasters such as earthquakes, fires, and floods), many do not contribute to the learning of aggressive thoughts, attitudes and behaviours. In order to have an
instance of violence, the animate being must be capable of evidencing intentionality as a perpetrator. The work conducted by Wilson et al., (1998) which, after thorough investigation provided an operational definition of violence will be adopted by the current thesis. It is considered imperative to capitalise on Wilson et al., (1998) earlier work to ensure consistency and uniformity across and between studies investigating filmed violence.

This conceptualisation of violence was offered by one of the largest and most rigorous studies, the National Television Violence Study (NTVS), undertaken by ten researchers at the University of California, Santa Barbara (see Wilson et al., 1998). The NTVS was grounded on two major assumptions: That exposure to violence contributes to a range of anti-social effects on viewers and that not all violent portrayals pose the same risk of harm to viewers. Based on these assumptions part one of the NTVS was interested in crafting a unique content analysis framework (i.e., definition, units of analysis, coding scheme) sensitive to capturing both the amount and the context of violence on American television for three consecutive years. This framework will be adopted to assist in the selection of appropriate film stimuli to be employed in the current thesis studies. Part two of the NTVS was more concerned with identifying the contextual features associated with violent depictions that most significantly increase the risk of a harmful effect on the audience. As the assumptions of the NTVS and the proposed study are analogous the current investigation will assess and determine violence according to the definition provided by the NTVS.

2.2 The impact of violence of society

It has been estimated that over a lifetime children and adolescents spend more time watching television (15,000 hours) than they do in school (11,000 hours) (Strasburger, 1985). In that time, the average child will have witnessed
approximately 180,000 murders, rapes, armed robberies, and assaults (Huston, Donnerstein, Fairchild, Feshbach, Katz, et al., 1992). A study published by the Australian Bureau of Statistics (ABS, 1999), which examined how Australians use their free time, recorded that the most popular activities were watching television, videos or attending the cinema. The 1997 Time Use Survey found that 88% of the population prefers the leisurely free-time pursuit of watching television, videos and films (ABS, 1999). This 1997 study also provided comparisons with the results from an identical 1992 Time Use Survey, which identified that the prevalence of watching television, videos or films has increased dramatically (ABS, 1999). Yet the precise effect of televised violence has been a source of considerable controversy since the earliest studies in the 1960s and continues to be a contemporary social issue, particularly in the area of aggression and antisocial behaviour. Anecdotally, portrayals of graphic violence have been attributed responsibility for escalating crime, callous neglect of victims by the public, and a general decline in social values – all of which are serious concerns that deserve investigation.

There is clear empirical evidence supporting the relationship between violence and consequent aggression. This conclusion is based on careful and critical readings of the social science research collected over the past 40 years (Pennell & Browne, 1999). A large amount of research has been undertaken over the last few decades investigating the relationship between exposure to violence and aggressive behaviour. The overall findings from these studies show that violence has a detrimental impact on individuals in both the short-term and the long-term. Investigations into the short-term effects of viewing violence have consistently documented that exposure to media violence contributes to increased aggressive behaviours in viewers. Two early reports from leading public health agencies, the 1972 Surgeon General’s Report and the 1982 National Institute of Mental Health (NIMH) review, concluded that violence could influence aggressive behaviour. The Surgeon General’s Report concluded that there was a consistent and significant
correlation between viewing violence and subsequent aggression. This finding emerged across many different measures of aggressive behaviour and across different methodological approaches (e.g., experimental evidence, longitudinal field studies) to studying the problem. In recent years additional reports, particularly from the NIMH, the Centers for Disease Control (1991), the National Academy of Science (1993), and the American Psychological Association (1993) have lent further support to the conclusion that the mass media contribute to aggressive attitudes and behaviour. In addition it has been identified that even those who do not themselves behave violently can be affected by their viewing of violence (Wilson et al., 1998).

The long-term implications of viewing violence can lead to a significant change in attitudes, perceptions and emotional desensitization. For example, when individuals who have been exposed to violence are compared to those in a control group, the individuals exposed to violence were found to have increased manifestation of aggressive (both physical and verbal) and anti-social behaviour (Comstock, 1991; Strasburger, 1995; Paik, 1991), lower levels of physiological and psychological arousal (Linz, Penrod, & Donnerstein, 1986; Geen & Donnerstein, 1998; Rule & Ferguson, 1986), and a latency of intervention when given an opportunity to respond to actual emergencies (Gaertner & Dovidio, 1977).

Perhaps the most powerful support for the conclusion that media violence is a significant contributor to violent and hostile behaviour is provided by the meta-analysis by Paik and Comstock in 1994. This report statistically combined more than 200 correlational and experimental studies and involved more than 1000 comparisons between violent media and control groups. The analysis revealed that media violence viewing consistently is associated with higher levels of antisocial behaviour ranging from the trivial (imitative violence directed against toys) to the
serious (criminal violence), with many consequential outcomes in between (acceptance of violence as a solution to problems, increased feelings of hostility, and the apparent delivery of painful stimulation to another person).

The idea that audiences are becoming habituated through repeated exposure to filmed violence is of major concern for health care officials and society in general (Linz, Penrod, & Donnerstein, 1986). Conferences on media violence have expressed official concern by calling upon researchers to direct their resources to a better understanding of ‘the dilemma of the detached bystander in the presence of violence” (Symposium on Media Violence and Pornography, 1984). Researchers have drawn a connection between habituation to violence and a failure to respond quickly or empathically to actual emergencies. This suggestion appears particularly pertinent given research in social psychology, which strongly suggests that the observation of another’s emergency is subjectively and physiologically arousing to the bystander (Linz, Penrod & Donnerstein, 1986). More importantly, however, it is this arousal, which is the primary determinant of the latency of intervention.

It appears, therefore, that viewing violence not only has the potential to promote aggressive behaviour but can also affect one’s willingness to assist another in the face of violence due to the process of habituation. The current research is interested in investigating the process of habituation of emotional variables whilst viewing repeated presentations of violent portrayals. Furthermore the thesis will also be interested in assessing individual’s emotional response to specific violent portrayals. This desire is generated by recent research, which has illustrated that not all violent portrayals are equal with regard to the risk they may pose (Wilson et al., 1998). Wilson and colleagues have identified that certain contextual features may increase the risk of a negative effect, where others may decrease that risk. Consequently, this
investigation is particularly interested in examining the effect of two contextual features, realism and fantasy, to assess their impact on the habituation of emotional variables. The following section will discuss the two contextual features under examination.

2.3 The importance of context – The degree of realism and fantasy

It has been noted throughout this thesis that exposure to media violence contributes to aggression, desensitization, and fear (Cantor, 2000). For all the research attention and methodological ingenuity invested in the analysis of TV violence and its effects, investigators in this field have sadly neglected the heterogeneous nature of violent portrayals. The intriguing hypothetical concept of specific content and its effect on viewers has been identified as a pressing priority for research in the new millennium (Brown & Cantor, 2000). Social science research indicates that not all violent portrayals pose the same risk to viewers and it is considered necessary to tease out important individual differences in impact (Wilson et al., 1998). For example, a documentary about gangs that contains scenes of violence in order to inform audiences about this societal problem may discourage aggression. The overall message about violence in such a program is likely to be quite different from that of an action-adventure movie featuring a glamorized violent hero. A comparison of a film like Schindler’s List about the Holocaust with a film like The Terminator illustrates this difference. Clearly, this example illuminates that the context within which violence is presented can alter the meaning of aggression and thus viewers’ affective and behavioural reactions. This thesis represents an attempt to systematically examine the two contextual features of realism and fantasy on individual’s emotional response to filmed violence.

In recent reviews of literature about media violence (Comstock & Paik, 1991; Donnerstein, Slaby, & Eron, 1994; Gunter, 1994) researchers have attempted to point
out some of the contextual factors that may mediate the relationship between viewing media violence and subsequent aggression. The reviews have pointed to the importance of such contextual factors as the reality of the violent depiction (Atkin, 1983). The recent report of the National Television Violence Study (Wilson et al., 1997), the most widespread study of violence on American television to date, similarly focused attention on the specific context in which violence was presented.

Previous research suggests that viewers tend to be more affected by violent scenes they regard as having actually happened than by incidents they perceive to be purely fictitious (Feshbach, 1972; Berkowitz & Alioto, 1973; Geen, 1975; Moore & Eves, 1992; Berkowitz, 1993). Despite the increasing consensus among researchers that qualitatively different presentations of violence may have differential effects on individuals, systematic research examining the effects of the degree of depicted graphicness or brutality on changes in behavioural, affective, attitudinal, or cognitive states is limited. Such a lack of relevant research appears doubly remiss because the aforementioned factors are important considerations for international media regulatory organisations that assess potential harm to viewers (Federman, 1996). Indeed the television industry in America itself has long recognized that violence can have different meanings depending upon how it is presented within a program (Wilson et al., 1998). Standards and practice guidelines at the broadcast networks warn against showing “callousness or indifference to suffering,” “scenes where children are victims,” and “portrayals of the use of weapons or implements readily accessible” (Network Television Association, 1992). These programming guidelines focus on contextual cues and the different ways that violence can be portrayed.

The significance of context is highlighted not only by the television industry guidelines, but also by academic research. Several major reviews of social science
research demonstrate that certain depictions are more likely than others to pose risks for viewers (Comstock & Paik, 1991; Gunter, 1994; Wilson, Linz, & Randall, 1990). Wilson et al., (1998) identified nine contextual factors: 1) nature of the perpetrator, 2) the nature of the target, 3) the reason for the violence, 4) the presence of weapons, 5) the extent and graphicness of the violence, 6) the degree of realism of the violence, 7) whether the violence is rewarded or punished, 8) the consequences of violence, and 9) whether humor is involved in violence. The current research is concerned with examining the degree of realism on individuals subsequent emotional response to filmed violence. Wilson et al., presented research findings regarding each factor and provided an indication as to whether a given contextual feature affects learning of aggression, desensitization, and/or fear. In their review of the literature Wilson et al., assert that existing attempts to examine the effect of the contextual features of realism to the degree of risk posed to the viewer has been restricted to the potential outcomes of subsequent aggression and fear. It was highlighted in the NTVS that there is little research on the degree of realism and fantasy to the subsequent desensitization of emotional variables. Following Wilson et al., recommendation this research will be interested in identifying the effects of realism and fantasy on the habituation of subsequent emotional arousal.

2.4 Theoretical explanations to the effects of violence

It is important to understand the psychological mechanisms that underlie the effects of violence on an individual’s response. A number of concepts from social learning and cognitive theories have emerged to explain the effects of violent film. One of the most prominent paradigms is social learning theory. The hypothesis that people may acquire new aggressive responses as a result of observing violence has received extensive support since it was first proposed in the early 1960s (Bandura, 1965). Bandura and his colleagues in a number of experiments showed modelling, or
imitative learning, of aggression with young children (e.g., Bandura, Ross, and Ross, 1963). The basic methodology employed in studies of modelling, involve several steps. Children first observe a number of novel and unusual aggressive responses performed by an adult model. The acts observed consisted of physical attacks on a large inflated clown doll (called a “bobo doll”), carried out with fists and other objects, along with concurrent aggressive verbalizations. The children were then mildly frustrated (by not being allowed to play with toys, despite previously been promised an opportunity), following this the children were then placed in the same settings as that in which they had earlier seen the bobo doll attacked. The typical finding of studies on modelling was that children who had previously seen the aggressive model emitted more of the observed novel acts than did children who had not observed a violent model. The social learning approach has been widely accepted and used by mass media scholars attempting to examine the relationship between exposure to media violence and aggressive behaviour in both children and adults (Comstock, 1991). Recently, however, Bandura (1986) reformulated this theory to account for more of the cognitive processes involved in observational learning and reentitled his explanatory framework, social cognitive theory. Other media researchers have also provided formulations of human cognition and information processing to explain the relationship between viewing violence and aggressive behaviour.

In recent years, two such cognitive theories have been proposed. In both it is assumed that the stimuli thus observed play an active role in enacting certain cognitive processes that eventuate in aggression. Huesmann (1986) proposed that social behaviour is controlled to a great extent by cognitive “scripts” that are learned early in the course of a child’s development. A script is a cognitive map stored in memory that serves as a guide for behaviour. Scripts are developed either through direct experience or by observing models, such as those portrayed in the mass media. By watching a great deal of interpersonal or media violence, children can develop
aggressive scripts or cognitive rules for dealing with problems that arise in social situations (Huesmann, 1986). It has been documented that Huesmann’s (1986, 1988) model can clearly account for both the short- and the long-term effects of viewing violent mass media content of aggressive behavior. It has been posited that repeated exposure to violence on television contributes to a child’s development and maintenance of aggressive scripts in memory for dealing with social problem solving. Such cumulative learning eventually leads a child to employ aggressive scripts and behaviours to solve interpersonal conflicts.

A line of reasoning similar to that of Huesmann was followed by Berkowitz (1984). Berkowitz’ “priming” hypothesis or “cognitive neo-association” theory works on the principle that “the aggressive ideas suggested by a violent movie can prime other semantically related thoughts, heightening the chances that viewers will have other aggressive ideas in this period” (p. 411). Therefore, he suggests that television and film violence might prime other aggressive ideas, feelings, and actions after viewing through “semantically strengthened pathways.” Thus, observation of television and film violence can engender a complex of associations consisting of aggressive ideas, emotions related to violence, and the impetus for aggressive actions. For example, Carver, Ganellen, Froming, and Chambers (1983) found that subjects exposed to a hostile video clip of a businessman and his secretary rated a subsequent ambiguous person as significantly more hostile than those subjects exposed to a nonhostile version of the same video clip.

Other studies have revealed that individuals who have witnessed certain types of violent encounters via the mass media (i.e., portrayals of sexual violence) are more likely to favor violence in interpersonal settings (Malamuth & Check, 1981). These results suggest that priming aggressive thoughts can alter both individuals’ interpretations of others and attitudes toward aggressive behaviour. Research
evidence also points to the idea that priming aggressive thoughts may heighten the probability of acting aggressively. For instance, Carver et al.’s (1983) results reveal that male subjects primed to have aggressive thoughts delivered significantly more intense electric shocks than those male subjects in the control (neutral prime) condition. Bushman and Geen (1990) provided further corroboration for Berkowitz’s hypothesis that observation of violence elicits thoughts related to aggression when they identified that people who have been exposed to violence are more likely to form cognitions related to aggression than people who are not so exposed. In addition the findings of Bushman and Geen (1990) corroborated the earlier work of Dodge (1980) when it was identified that individual differences in trait aggressiveness among boys were predictors of differential aggressive behaviour in responses to provocation. The finding that personality variables related to aggression are shown to play a moderating role in aggressive cognitions is not surprising when considered in light of Berkowitz’ priming theory. According to Berkowitz highly aggressive individuals possess a relatively large network of aggressive associations that can be activated by a cue. Among the many issues raised by research on the effects of media violence, one that has received relatively little attention is that of the possible moderating role played by individual differences.

2.5 Violence and the implications of personality

A long standing limitation in current research investigating the effects of violence is that much of it does not account for important individual differences. Eysenck and Nias (1978) argued that one of the fundamental shortcomings of research into the effects of violence was the limited extent to which individual differences in viewers’ responses to violent portrayals have been explored. Two decades later Roberts (2000) states that whilst it seems clear to most of the academic community that frequent viewing of violent entertainment media results in increase aggressive
attitudes and behaviours, it is increasingly apparent that not all individuals are affected in the same way or to the same extent. The major focus of the current thesis is to examine the habituation of emotional variables to a realistic and fantasized depiction of filmed violence. In the process of exploring emotional response, however, the thesis will explore the mediating role of personality variables.

This lack of emphasis on the effect of personality in determining an individual’s response to violence is surprising. Not only because of the overall interest in individual differences now current in the field but also because of the allegation, often made by persons associated with the mass media, that observed violence affects the behaviour of only certain persons who are highly aggressive by nature (Bushman & Geen, 1990, 1996). Few studies have attempted to discover whether certain personality variables and individual differences serve to moderate an individual’s reaction to the viewing of violence (Bushman and Geen, 1990). This lack of interest in personality as a variable in media-related aggression can be attributed to several causes. One is the lack of agreement on means of assessing anger and aggressiveness. Anger and aggression are vital concepts in many theories of personality. Although numerous studies testify to their negative impact on physical and psychological well-being, definition of these constructs have, until recently, often been ambiguous and sometimes even contradictory, creating conceptual confusion that is currently reflected in an assortment of measurement techniques of questionable validity (Biaggio & Maiuro, 1985). Another reason may stem from the tendency of social psychologists to place a relatively greater emphasis on the situational determinants of aggression than on stable characteristics of personality. Another reason has been the absence, until recently, of coherent theories of media-elicited aggression within which personality constructs can be embedded. Although numerous theories have been available (e.g. Bandura, 1973; Berkowitz, 1974; Zillmann, 1979), none have specifically addressed the role of personality, nor have
any suggested clearly which personality variables might moderate the situational effects being described.

Some recent developments indicate, however, that the study of personality factors in media-related aggression may now be feasible. Anger and aggressive tendencies over time and situations have been shown to be more stable than was previously believed (e.g. Huesmann, Eron, Lefkowitz, & Walder, 1984; Spielberger, 1999). The production of Spielberger’s Stait Trait Anger Expression Inventory-2 (STAXI-2, 1999) appears to have provided some power and validity for assessing traits related to aggressive and angry behaviour. The revised and expanded STAXI-2 allows for the concise measurement of the experience, expression and control of anger. The concept of state anger as described by Spielberger (1999) is “a psychobiological emotional state marked by subjective feelings feelings that vary in intensity from mild irritation or annoyance to intense fury and rage. Anger as a psychobiological emotional state is generally accompanied by muscular tension and by arousal of the neuroendocrine and autonomic nervous systems.” (p. 1). In addition, it is recognised that over time, the intensity of state anger varies as a function of perceived injustice, being attacked or treated unfairly by others, or frustration resulting from barriers to goal-directed behaviour. Trait anger is defined in terms of individual differences in the disposition to perceive a wide range of situations as annoying or frustrating and by the tendency to respond to such situations with elevations in state anger.

The importance of research about differential effects can be seen in studies conducted by Lynch (1994, 1999), who conducted a series of studies documenting the physiological effects of highly violent video games on adolescents. This work identified that individual differences in pre-existing hostility and anger levels interact in important ways with physiologic and emotional reactivity to video games. Lynch found that angry youth react much more strongly to violent video games than
do more tranquil youth. Importantly, if the sample was not stratified by measures of hostility, this important effect is masked. A more recent study conducted by Anderson and Dill (2000) also found a positive correlation between real-life aggressive behaviour and violent video game play, and that the frequency of violent video game playing was correlated with delinquency. What is particularly noteworthy, however, is that, like Lynch, they found that the correlation was much stronger for individuals who were characteristically aggressive. The STAXI-2 (2001) will be employed in the proposed research to assess the extent to which individual differences mediate media effects.

In addition to the research that has implicated the variables of anger and aggression, the potential contribution of other aspects of individual differences, specifically, personality is worthy of consideration. There is some evidence that personality may be a factor in how arousing individuals find scenes of violence. Where individual differences have been taken into account by mass-media researchers, significant variations have been observed among viewers in their behavioural, emotional and perceptual responses to violence, and particularly in relation to their reactions to violent episodes (Gunter & Furnham, 1983). The existing research, which attempts to account for the heterogeneity of the audience, has been limited in the depth to which personality mediators of violence judgments have been measured (Brown & Cantor, 2000). Walsh (2000) states that there is a need for a systematic and comprehensive examination of the impact of violence within a broad theoretical framework that incorporates standardized, tried and tested measures of personality. An appropriate framework to examine the possible mediating effects of personality is provided by Eysenck’s three-dimensional model of personality. Previous work conducted earlier by Gunter and Furnham (1983) reported that the Neuroticism (N) and Extraversion (E) factors, as measured by the Eysenck Personality Questionnaire
(EPQ: Eysenck and Eysenck, 1975) were related to viewers’ perceptions of violent TV portrayals. That is, viewers characterised by different degrees of N, E and P were found to differ in their judgements of violent TV portrayals.

Of the three personality factors measured in this study, neuroticism was most powerfully and consistently related to viewers’ perceptions of TV violence. There was a tendency for more emotionally-sensitive people (i.e. high n scorers) to perceive violent episodes as more serious than did less-sensitive individuals. Later work by Gunter (1985) lent further support to the impact of neuroticism, when it was identified that violent materials were rated as more violent and frightening by individuals who scored high on neuroticism compared to those who scored lower. In addition, individuals with higher psychoticism scores were less frightened by violence, and those scoring high on P, N and E found violence more humorous. The EPQ has been extensively employed to assess viewers’ scores on the N, E and P dimensions of the EPQ and their perceptions of and reactions to violent episodes (Gunter and Furnham, 1983). The EPQ will be used in the current thesis to assess the possible mediating effects of personality on the process of emotional habituation to filmed violence. Taken within the context of the current thesis, habituation is operationalised as a behaviour principle to identify the effect of repeated exposure to violence on an individual’s subjective and objective emotional response to filmed violence.
CHAPTER 3.

HABITUATION

Following a review of the literature covered in the preceding section on film violence it appears that the construct of habituation is of significance. It has been suggested that audiences are becoming psychologically and physiologically habituated through repeated exposure to filmed violence (Linz, Donnerstein, & Penrod, 1988). Health care officials assert that the implications of this habituation are diffuse, more specifically; repeated viewing of violence may affect one’s willingness to respond quickly or empathically to actual emergencies (Pennell and Browne, 1999). People who initially experience negative emotional responses while observing aggression may respond less emotionally after repeated exposure to violence. The reduced negative affect associated with increased exposure to aggression may increase the likelihood of their expressing aggression. Moreover, such emotional habituation may reduce concern for others’ aggression.

This habituation of emotions to provoking stimuli has been illustrated in a variety of studies where participants observe anxiety-producing films devoid of aggressive content. Some studies, however, have specifically examined the impact of aggressive films on arousal. Cline, Croft, and Courrier (1973) found that young boys (aged 5 – 12 years) who were heavy television viewers displayed lower arousal while viewing new violent film segments than did boys with a very light exposure to television. The correlational nature of the study makes it difficult to evaluate the causal sequence. Manipulations of independent situational variables are needed to deduce causal relations. Thomas, Horton, Lippincott and Drabman (1977) conducted
two experimental studies to rectify this problem. They exposed young boys and girls, as well as adult men and women, to a film that was either aggressive in content or neutral but arousing. With the exception of female adults, participants who had previously seen an aggression drama were less physiologically aroused when they observed scenes of real aggression than were those who had seen a neutral film. In addition, participants’ emotional responsiveness while viewing scenes of real aggression was negatively related to the amount of violence that they had reported as normally viewed. This relation held especially in the neutral-film condition for younger participants and in the aggression-film condition for adult participants.

Thus, although the results are qualified in several respects, they generally show a positive relation between emotional habituation and repeated exposure to violence. Emotional reactions to repeated viewing of violence against women have been examined by Linz, Donnerstein, and Penrod (1984). In their study, college men saw five R-rated slasher films depicting violence against women. Men reported lower levels of anxiety on the last day compared to their first day of viewing. The men also perceived the films as less violent and less degrading to women on the last day of viewing. In summary, research using both correlational and experimental designs show that repeated exposure to violence leads to decreases in the intensity of self-reported emotions. The research to date, however, has failed to assess the process of emotional habituation with a consideration of contextual features. The current thesis will assess the habituation of emotional response to both a realistic and fantasized depiction of filmed violence. The discourse in the following section will discuss habituation and provide an outline of the paradigm that will be employed in the proposed study to explore individuals’ emotional response.
3.1 Conceptualisation and operationalisation

Habituation is a systematic decrease in the magnitude of a response upon repeated presentations of an eliciting stimulus when the decrement is not caused by fatigue or receptor adaptation (Thompson & Spencer, 1966). This phenomenon of responding progressively less vigorously when the evoking stimulus is repeatedly presented has been described as one of the most basic and ubiquitous forms of learning or adaptation (Over & Koukounas, 1995). The effect of habituation has been experimentally demonstrated for a large number of species across a range of response systems (see Peeke & Herz, 1973). For example, research assessing visual discrimination in humans has identified that from the earliest age infants look increasingly less often at a repetitive visual display. Attention is, however, restored when the familiar pattern is replaced by a novel pattern (e.g., Slater, Morison, & Somers, 1988). A study conducted by Wyers, Peek, and Herz, (1973) identified that the gill withdrawal response of the marine gastropod mollusk Aplysia evoked by tactile stimulation decreases over repeated trials and responsivity recovers when stimulation has ceased. In the laboratory, researchers (e.g., Koukounas & Over, 1993; Meuwissen & Over, 1990; O’Donohue & Geer, 1985) have shown that repeated presentations of sexual stimuli can lead to habituation of sexual arousal.

In a review of the research, Over and Koukounas (1995) concluded that most of the research on habituation is product-oriented. Product-oriented infers that the primary concern of the investigator has been to demonstrate that the response system under study exhibits the classic laws of habituation. According to Thompson and Spencer (1966) a basic “law” is that the rate of decline in response is directly proportional to the frequency of stimulation (i.e., the more frequently presented the stimulus, the more rapid the habituation) and negatively proportional to stimulus intensity (i.e., the stronger the stimulus, the slower the habituation). An additional aim of product-orientated research is to examine whether response level recovers when the stimulus
that induced habituation is no longer presented (referred to as spontaneous recovery), when the repeated stimulus is replaced by novel stimulus (the novelty effect), and when the familiar stimulus is reintroduced following exposure to a novel stimulus (referred to as dishabituation). The preceding conceptualization of habituation requires a discussion of several methodological issues involved in determining whether level of arousal habituates.

The definition of habituation provided by Thompson and Spencer (1966) states that habituation can be defined operationally as a reduction in arousal level over the course of repeated stimulation. Furthermore, however, this decrement must not be caused by fatigue or receptor adaptation. Wyers, Peeke, and Herz (1973) assert that habituation can be distinguished from fatigue by showing that a response habituated to a familiar stimulus can subsequently be reinstated by presentation of a novel stimulus. Similarly, habituation differs from sensory adaptation because responding may be restored after habituation to an intense stimulus by suddenly reducing the intensity of the stimulus. To fulfill the requirement of habituation a basic methodological requirement in testing is that the stimulus, which is to be presented repeatedly, must initially be above the baseline or floor arousal level. In the absence of this condition, there is not capacity for arousal to decrease over trials. An additional necessity of the criterion to meet with habituation is a decrement in response in the face of constant stimulation. Several researchers concerned with whether individuals habituate to violence have contrasted outcomes when subjects are presented with the same violent portrayal over trials or with violent portrayals varied from trial to trial. It is, therefore, only the former condition that conforms to the standard habituation paradigm.

The current study will employ the product-oriented habituation paradigm. Respondents will be repeatedly exposed to the same stimulus over trials. During
repeated exposure emotional response, measured subjectively and objectively, will be recorded regularly to assess for a decrease in arousal over trials. Following repeated exposure a novel stimulus will be introduced to assess whether emotional response level recovers. Following assessment of the novelty effect the familiar, original stimulus will be reintroduced to assess for dishabituation. Having established the necessary procedures for conducting research under the standard habituation paradigm, the following discourse will discuss general issues of interpretation.

Over and Koukounas (1995) suggest that when arousal increases following replacement of the familiar stimulus by a novel stimulus, it is generally concluded that the response decrement prior to novel stimulation was habituation. Care must be exercised, however, in interpreting the case where introduction of novel stimulation does not produce an increase in arousal. Habituation demonstrates stimulus generalization, and in these situations the new stimulus may not be “novel”. A further problem will arise if the new stimulus has low intrinsic arousal value. As the stimulus to be presented must be above the baseline or floor level of arousal, the novel stimulus should ideally be as arousing, when tested in isolation as the stimulus that was presented repeatedly. Although a decrement in response followed by recovery with novel stimulation provides evidence of habituation, it has been suggested that stability in response over trials does not necessarily indicate that the response system under consideration fails to habituate (Over & Koukounas, 1995).

The stability in response could be attributed to the scheduling of events, specifically with respect to trial duration and interstimulus interval. For example, a decrease in arousal may be identified if further trials were provided or if a stimulus other than that used in the study was employed. Failure to find a decrement in response during repeated stimulation should provoke further investigation aimed at establishing
whether there are conditions under which the response system demonstrates habituation, as well as conditions where habituation is not evident. In situations where an elevation of response is observed when the familiar stimulus is reinstated following presentation of the novel stimulus occurs the term dishabituation is generally used. The term itself, dishabituation, implies that introducing a novel stimulus disrupts or reverses the process of habituation.

The current study will employ the habituation paradigm as outlined above to investigate individual’s emotional response across repeated presentations of violent portrayals. The emotions generated by the film stimulus will be assessed both subjectively thought self-report and objectively employing the eyeblink startle response. The eyeblink startle response has been documented as an effective tool for assessing individuals’ emotions whilst viewing violent portrayals (Koukounas & McCabe, 2001). The following discourse will introduce the human eyeblink startle response and provide information with respect to measurement procedures.
CHAPTER 4.

HUMAN EYEBLINK STARTLE RESPONSE

Interest in research on the startle reflex has shown dramatic growth; the number of published articles on the eyeblink startle response in humans, as indexed by the MedLine and PsychLIT computerised databases has increased exponentially particularly over the last decade (Filion, Dawson, & Schell, 1998). Comparatively, the number of published articles on the human startle eyeblink increased steadily, during the time stretching from 1971, in which there were 2 articles, to 1990 which saw 35 references published. More recently, however, PsychLIT and MedLine indicate that during the period of 1991 – 1995 the number of published articles has peaked in excess of 80 (See figure 1).

![Figure 1. Number of published articles on human startle eyeblink modification based on the PsychLIT and MedLine computerized databases.](image)
4.1 What is the Startle Probe Response?

The startle reflex consists of a set of involuntary responses to a sudden, intense stimulus, especially when novel and aversive (Lang, Bradley & Cuthbert, 1990). Early interest in the human startle response was stimulated by the work of Landis and Hunt (1939, cited in Lang et al., 1990), which suggested that the startle reflex is potentiated in aversive affective states. For example, a pistol shot activated the startle reflex in participants, and subsequent movement was recorded with high-speed motion pictures. Drawings of the rapidly unfolding, whole-body startle have been frequently documented in textbooks (e.g., Woodworth & Schlosberg, 1956). These illustrations indicate the gross features of the startle reflex include a forward thrusting of the head and a descending flexor wave reaction, extending through the trunk to the knees. The first, fastest, and most stable element in the sequence, however, is the sudden closure of the eyelids. It is the eyeblink startle response which will be investigated in the current thesis.

Due to these response properties, the startle has become an important tool in many experiments (Lang, Bradley & Cuthbert, 1990). In human beings, the most easily measured and the most reliable component of the startle reflex is the magnitude of the eyeblink response to an acoustic probe (Anthony, 1985). There has been increased interest in this measure since the discovery that it can be influenced by prevailing emotional state (Lang, Bradley, Cuthbert & Patrick, 1992). For example, it has been widely reported that the eyeblink component of the acoustic startle reflex can be modulated by emotionally-toned stimuli; pleasant stimuli reduce eyeblink amplitudes whereas unpleasant stimuli augment eyeblink magnitude (Vrana, Spence & Lang, 1988). The startle response is part of an aversive emotional system organised in opposition to an appetitive system, based on the model proposed by Klonorski (Lang, Bradley & Cuthbert, 1992).
The evidence supporting this view comes from studies in which the acoustic startle eyeblink response was measured during the viewing of emotionally valenced pictures (Lang et al., 1992). The typical result is enhanced startle reactivity while viewing slides with negative valence (unpleasant slides) and reduced startle reactivity while viewing slides with positive valence (pleasant slides). This negative correlation between startle reactivity and emotional valence has been replicated several times with several different methodological variations (Bradley, Cuthbert & Lang, 1990; Cook, Hawk, Davis & Stevenson, 1991; Ehrlichman, Brown, Ahu & Warrenburg, 1995; Vrana, Spence & Lang, 1988).

These basic observations have been extensively replicated under various experimental conditions and the method has proved useful in the measurement of emotional reactivity in clinical anxiety (Cuthbert, Patrick, & Lang, 1991), experimentally-induced anxiety states (Grillon & Davis, 1995) and psychopathy (Patrick, Bradley, & Lang, 1993). The current thesis is interested in further corroborating the use of the eyeblink startle response as a valid tool to objectively measure emotional response. The thesis will apply the eyeblink startle response to assess the habituation of individuals emotional response to filmed violence. Following the research, which has demonstrated increased augmentation under aversive conditions it is expected that individuals will produce potentiated startle whilst viewing the violent portrayals relative to the neutral stimuli. It is also expected that the amplitude of the eyeblink startle response will decrease in magnitude across trials.
4.2 Konorski’s (1948) biphasic model of emotion

The central premise of Konorski’s (1948) biphasic theory of emotion is that emotions are organised into two oppositional motivational systems: the aversive system which serves all protective and defensive functions while the opposing system, the appetitive system collectively embodied alimentary, nurturant, and procreative needs. Konorski postulated that emotional states and affect-evoking stimuli fall into one of two classes – pleasant or unpleasant. It is suggested that pleasant states are driven by the appetitive system and unpleasant states by the aversive motivation system. Thus, an emotion can be defined by the orthogonal parameters of valence (pleasant/appetitive vs. unpleasant/defensive) and arousal (calm vs. excitatory) as shown in Figure 2.

Figure 2. An emotion circumplex, defined by the dimensions of arousal and affective valence, is presented in the left panel. The open arrows show the direction of Tellegen’s Positive and Negative Affect dimensions, which data suggest may be the paths of increasing startle inhibition and potentiation, respectively. The numbered circles represent the approximate rated locations of photographic slides from the International Affective Picture System (IAPS; Lang, Ohman, & Vaitl, 1988): 1. wicker basket; 2. nature scene; 3. happy baby; 4. chocolate sundae; 5. water skier; 6. erotic couple; 7. violent death; 8. aimed gun; 9. AIDS patient; 10. cemetery. Differences in mean startle probe magnitudes (in analog-to-digital units) for pleasant, low-arousal neutral, and unpleasant slides are presented in the right panel of the figure (from Bradley, Cuthbert, & Lang, 1990).
A basic principle of Konorski’s (1948) model is that responses activated by the same motivational system (appetitive or aversive) are synergistically augmenting, and that responses activated by different systems are mutually inhibiting. The reflex probe employed in research is a startle-inducing stimulus, which prompts a protective-defensive reflex and, in theory, activates the aversive motivational system. Thus startle reflexes evoked during an ongoing appetitive emotional state (a reflex-affect mismatch) will be inhibited; startle reflexes evoked during an aversive state (a reflex-affect match) will be markedly augmented. For example, when adult human subjects experience stimuli or situations, which they rate as unpleasant or anxiety provoking, that magnitude of the startle eyeblink reflex is heightened. According to Konorski’s (1948) model this increase in startle reactivity occurs because both the startle stimulus and the unpleasant stimuli activate aversive motivational systems, creating an additive effect.

A study exploring the general hypothesis that startle responses are inhibited for pleasant affects, and that aversive affects augment the same startle reflex was conducted by Vrana, Spence, and Lang (1988). The subjects viewed a series of photographic slides while acoustic startle probes were randomly presented. The slide stimuli were selected from the International Affective Picture System (1988) on the basis of normative affective ratings (see Fig. 2) and organized into three affective classes: unpleasant (e.g., poisonous snakes, aimed guns, pictures of violent death), pleasant (e.g., happy babies, appetizing food, attractive nudes), and neutral (e.g., umbrellas, hair dryer, other common household objects). As shown in Figure 2 (insert), a significant linear trend was observed over slide valence categories, with the largest startle blink responses occurring during unpleasant content and the smallest during pleasant content.
Subsequent replication in several independent experiments has confirmed that the phenomenon involves both a significant potentiation of responding during unpleasant slides and a significant inhibition during pleasant pictures relative to neutral content. Knowledge derived from the IAPS study to the current thesis provides theoretical insight into the application of the eyeblink startle response to assess emotional response to filmed violence. According to the IAPS study, violent film content, which is processed as unpleasant, should elicit greater startle amplitude compared to film stimuli that is appraised as pleasant. It is expected that repeated exposure to violent film stimuli will result in a less aversive experience, therefore, it is expected that with repetition the magnitude of the eyeblink startle response will decrease. The following discourse provides an explanation of how investigators interested in assessing emotions measure the startle response.

4.3 **How can the Startle Response be measured?**

The startle eyeblink response paradigm employs emotionally-toned slides as background to the presentation of an acoustic startle stimulus (Lang, 1995). More recently, however, research has aimed at extending the startle-affect relationship that was obtained with affectively toned slides to more complex stimuli, namely film (Kaviani, Gray, Checkley, Kumari, & Wilson, 1999). Following this direction the current study will be employing various violent film segments and subsequently measuring the startle eyeblink. Films are commonly used as laboratory emotion elicitors and may provide more potent emotional stimuli than other media, causing more comprehensive involvement in the provoked emotional states. For example, films are reported to elicit stronger physiological and subjective sexual arousal than do erotic audio tapes, slides, or fantasies, for both men and women (Jansen & Frijda, 1994).
The dependant measure most commonly reported in human startle research is a change reflecting the difference in size of the startle eyeblink elicited. The startle response is a progressive flexor movement, involving the entire body, and is grossly similar across mammalian species. Sudden closure of the eyelids is one of the first, fastest (occurring within 30 to 50 ms after startle stimulus onset) and most stable elements in the reflex sequence. Eyeblink is occasioned by rapid contraction of the orbicularis oculi muscle (See figure 3).

Figure 3. Left panel: Illustration of the orbicularis oculi and corrugator muscles on the left side of the face and the placement of the eyeblink recording electrodes when positioned beneath the right eye. Top right panel: A muscle action potential from orbicularis, recorded during a blink reflex. Bottom right panel: an integration of this same signal, which is the response waveform scored for peak amplitude and latency in most human subject studies of the probe reflex. (EMG + electromyogram; A-D = analog-to digital conversion.) (Figure from Lang et al., 1990).

The eyeblink response is variously recorded – by photography; by using a potentiometer attached with a thread to the eyelid; by the electro-oculogram, where abrupt pen movements indicate the lid passing rapidly over the corneal surface; or indeed, inadvertently by electroencephalogram, in which the recording of the reflex
may appear as a troubling artifact. The electromyographic measurement of orbicularis muscle during eyeblink is shown in Figure 3. This method captures events most proximal to the neural path of innervation and is thus preferred by most investigators. Due to these properties, the eyeblink component of the startle response in the current study will be measured by recording electromyographic (EMG) activity from the orbicularis oculi muscle directly above and below the left eye. The objective measures of emotion, provided by the non-voluntary startle eyeblink will be compared with the subjective reports which will assess the following eight aspects of emotion: subjective arousal, positive feelings, anxiety, disgust, entertainment, boredom, anger and curiosity. It is anticipated that both the objective and subjective measures of emotion will demonstrate a correlational relationship, such that eyeblink augmentation decreases over repeated presentation as the film segments are reported to be less aversive. In summary the current research is initially interested in examining the habituation of emotional responses to violent film, both through self-report and through the use of the eyeblink startle response, and to determine whether these findings are different for males and females. An additional aim of the research is to then examine the impact of specific contextual variables on the habituation of emotional variables. The next section will examine empirical links between these three phenomena, and discuss the implications of these links for the current research proposal.
CHAPTER 5.

POTENTIAL RELATIONSHIPS BETWEEN FILM VIOLENCE, EYEBLINK STARTLE AND HABITUATION.

5.1 Research to date

The existing body of research, which highlights the habituation of emotional variables whilst viewing violent film, is limited. Furthermore the findings from these investigations are inconsistent and difficult to reconcile between studies of methodological differences (Lande, 1993). This issue is particularly salient with respect to gender differences in emotional response to violent portrayals. Despite the large amount of evidence, which has identified that there are clear differences in male and female responses to violent films (Linz et al., 1988), very few studies have considered the differential role of emotional variables between gender. For example, studies have focused on either male or female samples separately, making evaluation of gender differences problematic (Rule & Ferguson, 1986).

It has been identified the men are more inclined than women to rate violent portrayals as pleasurable, amusing, realistic, and emotionally arousing (Blanchard, Graczyk, & Blanchard, 1986; Kelley, 1985), and are more likely to behave aggressively following exposure to violent film, and expect approval from their friends for acting in this manner (Harris, 1994). In a review of the literature Koukounas and McCabe (2000) concluded that these findings were suggestive of a gender difference in the emotional processing of violence in film and a corresponding gender difference in the arousal response to the violence.
Acknowledging this deficit in research examining gender effects, Koukounas and McCabe (2000) conducted research to examine the emotional responses to violent film (compared to nature film), both through self-report and through the use of the eyeblink startle response. An additional aim of the research was to determine whether the findings were different for males and females. Koukounas and McCabe's hypothesis that differences do exist between the manner in which men and women respond to violent film was confirmed. With respect to magnitude of the eyeblink startle, an augmented startle was recorded when subjects were watching violence but it was diminished during presentation of the nature segments. Gender differences were evident with females producing greater augmentation during violent film presentation than did the male participants.

Generally speaking this difference in response to filmed violence could be attributed to the fact that women found the violence more disgusting, boring and anger inducing than did the males. The study confirmed that the pattern of emotional response was parallel for both the subjective and objective measures of emotion. That is the eyeblink startle response increased as the positive feelings associated with the violent film diminished. Female participants felt less positively about the violence than male participants and this was correlated in their augmented startle response magnitude to the violent film relative to the males. The proposed thesis represents a partial replication of Koukounas and McCabe (2000).

The current thesis aims to corroborate the earlier findings of Koukounas and McCabe (2000), which identified an augmented startle during viewing of violent portrayals relative to neutral. In addition the results established that, with respect to the effect of gender, females demonstrated greater startle then males. Subsequently, the current thesis aims to provide an extension of the work conducted by Koukounas &
McCabe (2000) to assess the emotional response of males and females separately over a prolonged period of viewing filmed violence. It is expected that gender differences will be observed, such that females will respond with greater physiological and psychological reactivity to the presented stimuli than males. Furthermore it is expected that respondents will demonstrate habituation of emotional response across trials. With the increased presentation of violent portrayals it is anticipated that individuals will experience a decrease in both subjective and objective emotional arousal.

5.2 Summary of findings

The majority of researchers in the area of violence are now convinced that there are three primary types of effects from viewing violence (Pennell and Browne, 1999). Academic investigations have produced strong empirical evidence that repeated exposure to violence can increase the likelihood of learnt aggressive attitudes and behaviours, cause viewers to become more callous, or desensitized to the harmfulness of violent behaviour, and contribute to unrealistic fears about the likelihood of being targeted by a violent assailant. More specifically, it has been suggested that repeated exposure to filmed violence might result in an inability of viewers’ to feel empathy or a reduced capacity to be emotionally aroused at the sight of violence (Cantor, 2000). This has generated renewed interest in assessing individuals’ level of emotional arousal to violent portrayals.

To assess emotion, researchers are increasingly employing the objective measurement of the human eyeblink startle reflex (Koukounas & McCabe, 2000). The eyeblink startle response has effectively been employed in conjunction with traditional self-report measures. The proposed study will similarly employ both an objective and subjective measure to assess emotional responses to filmed violence.
The nonvoluntary startle response will enable obtainment of EMG activity to objectively assess emotional response to the filmed violence. Subjective measures of emotion will assess individuals’ level of subjective arousal, positive feelings, anxiety, disgust, entertainment, boredom, anger and curiosity through a self-report Likert scale.

Recent investigations have identified, however, that the effects from viewing violence are not uniform across all possible examples of violent depictions. Research in the area has recently identified that not all violence poses the same degree of risk of these harmful effects. Wilson et al. (1998) identified nine contextual features of violence, which can potentially increase or decrease the degree of risk posed to individuals. Two of these contextual features, realism and fantasy, will be investigated separately to determine their impact on individual’s subsequent emotional response to filmed violence. Thus, whilst the primary aim of the current thesis is to explore the habituation of emotional response, a secondary goal is to determine the impact of contextual features on this process.

Whilst there is clear evidence that exposure to media violence contributes in significant ways to violence in society, there is universal agreement that many factors contribute to violent behaviour. Media violence is only one area of influence crucial to explore in an attempt to understand the role media may be playing in the development of today’s society. The literature interested in assessing the effects of media violence has been repeatedly criticized because of its failure to account for individual differences (Kiewitz & Weaver, 2001). For example, although it seems clear to the academic community that viewing of violence can result in increased aggressive attitudes and behaviours, it is equally apparent that not all individuals are affected in the same way or to the same extent. The purpose of the current thesis is to further extend the literature by examining the impact of individual differences,
both personality and state-trait anger, on the subsequent emotional response to filmed violence.

5.3 Research Questions

There are a number of theoretical issues relevant to this thesis. Firstly, the review of the scientific literature has shown a remarkable degree of convergence in findings, which lead to the conclusion that media violence contributes to anti-social effects on viewers. There are three primary types of effects from viewing violence; (a) learning of aggressive attitudes and behaviours, (b) desensitization to violence, and, (c) fear of being victimized by violence. Whilst the research is well established in identifying these effects there is an absence of research investigating habituation to filmed violence. Part one of the proposed study will examine the habituation of emotional responses to violent film, both through self-report and through the use of the eyeblink startle response, and to determine whether these findings are different for males and females.

Secondly, not all violence poses the same degree of risk of these harmful effects. The literature investigating the effect of contextual features has identified that the effects of viewing violence are not uniform across all possible examples of violent depictions. The research reviewed has indicated that the context in which violence occurs may vary in many important ways, and those differences can hold crucial implications for their impact on the audience. Given this knowledge the aim of part two will be to conduct a multidimensional analysis of filmed violence to examine the effect of two specific contextual variables, realism and fantasy, on the subsequent habituation of emotional response.
Finally, the literature examining the effects of viewing violence has began to recognize the dearth of investigations which neglect to take into consideration the heterogeneity of the audience, and the fact that individuals vary widely in terms of social background and personality. Consequently, comments regarding the implication of individual differences can be only tentative at best. This thesis represents an attempt to explore the impact of exposure to filmed violence on the habituation of emotional variables whilst accounting for personality and state-trait anger.
5.4 Hypotheses for Study Two

(i) It is hypothesized that repeated exposure to violent film will result in a decline of the five emotional responses, disgust, positive feelings, entertained, anxiety and anger, as measured by subjective self-report and the magnitude of the startle eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli.

(ii) It is hypothesized that respondents will demonstrate gender differences in the process of habituation to violent film material. It is anticipated that females will initially react with more intense physiological and psychological reactions to the violent film than males. Furthermore it is expected, however, that the process of emotional habituation across time will parallel for the genders.

(iii) It is hypothesized that respondents will show a correlation between subjective emotional responses to violent stimuli and the magnitude of the eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli. Such that an augmented startle will be exhibited when subjective self reports indicate an aversive emotional experience.

(iv) It is hypothesized that an assessment of personality and state-trait anger will have a mediating effect on individuals’ emotional response to the filmed violence.

5.5 Hypotheses for Study Three

(i) It is hypothesized that the habituation of the eight emotional variables to violent film, which varies on the contextual features of humor and degree of realism, will differ. More specifically, it is expected that viewers will be psychologically and physiologically more strongly
affected by the realistic portrayal of violence compared to the fantasized depiction.

(ii) It is hypothesized that respondents will demonstrate gender differences in the habituation of emotional variables to violent film material.

(iii) It is hypothesized that respondents will show a correlation between subjective emotional responses to violent stimuli and the magnitude of the eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli.

(iv) It is hypothesized that an assessment of personality and state-trait anger will have a mediating effect on individuals’ emotional response to the filmed violence.
CHAPTER 6.

STUDY 1: EXPLORATORY
SELECTION AND IDENTIFICATION OF POTENTIAL FILM STIMULI
WITH A CONSIDERATION OF CONTEXTUAL FEATURES

6.1 Introduction

One of the main dilemmas inherent in investigating the effects of filmed violence is the wide variation in methodological conceptualisation, and definition (Brown & Cantor, 2000). As a result, generalisation and replication of research findings are limited and specific only to the experimental design. One quickly gains appreciation of the complexities in investigation the domain of filmed violence when attempting to define, identify, and select what constitutes appropriate stimuli. Whilst a considerable amount of research and content analysis has been conducted resulting in the creation of a structural and elaborate framework in which depictions of violence can be classified, limited guidelines exist regarding the initial selection and identification of violent stimuli. A consideration of efforts by researchers to operationalise and define violence identifies the enormity of the challenge faced. It is recognised that the struggle is long-standing caused by a continuing evolution of generational, societal and individual opinions (MAN, 1998). The aim of the current exploratory study is to provide a review of the literature surrounding the conceptualisation and operationalisation of violence. This knowledge is necessary to ensure that the selection of the film stimuli to be selected and employed in the current thesis studies are considered theoretically relevant and appropriate.
The recent report of the National Television Violence Study (Wilson et al., 1998), the most widespread study of violence conducted in America to date, established a content analysis framework to assist in the classification of violent stimuli. Using their definition of violence, which is described as ‘any overt depiction of a credible threat of physical force or the actual use of such force intended to physically harm an animate being or group of beings’ (p. 21), the framework allows for analysis of film stimuli and directs the process of classification. More specifically, however, application of the framework adopted by the NTVS study (Wilson et al., 1998) provided corroborating evidence of earlier research (Berry, Gray, Donnerstein, 1995; Atkin, 1989; Moore & Cockerton, 1996; Thomas, Horton, Lipppincott & Drabman, 1977) which had began to highlight that violence can be depicted in a variety of ways. There are a vast array of approaches to presenting violent material. For example, differences in the depiction of the results of violence, including both the pain and suffering of victims as well as the outcomes for the perpetrator. Simply put, not all portrayals of violence are the same.

The literature has presented substantial evidence that differences in the context of a violent portrayal hold important implications for their impact on viewers. Whilst it is established by scientific research that exposure to violence contributes to a range of anti-social or harmful events on viewers these effects have not proven uniform across all possible examples of violent depictions. These differences in portrayals and their related implications for influencing the audience represent a major focus of the current thesis. The current thesis aims to examine specifically the two contextual features, realism and fantasy content (non-realistic), of violent portrayals in order to gain an appreciation of their likely impact on the audience. Consequently the current exploratory study aims to identify, distinguish and select film stimuli along the continuum of realism, fantasy and violence. Whilst investigations previously conducted have concentrated on the learning of aggressive attitudes and behaviours, desensitisation and fear, the goal of the current study is to further extend these examinations to explore the process of emotional habituation to filmed violence with a consideration of the two contextual features, fantasy content and realism.

The current study will adopt the definition and method of content analysis created by Wilson et al., (1998) to guide the evaluation and identification of specific portrayals
and elements of violence. This process will ensure that the sample of film stimuli selected will be considered reflective of violence, as it is currently conceptualised within the literature. Thus the primary aim of the exploratory study is to allow for the selection of film stimuli considered not only theoretically but also socially relevant and culturally violent, as classified by the target population. Following this, however, a secondary and more specific desire is to examine and assess the film stimuli to ensure the two contextual features, realism and fantasy content, which will be under investigation in the later studies will be represented.

6.2 Method

6.2.1 Participants

A sample of thirty participants, 15 men (mean age 21.67 years, SD 4.82) and 15 women (mean age 23.81 years, SD 3.45) were recruited through advertisements placed on the noticeboards of a large metropolitan university and in student newspaper publications (Appendix G). All subjects provided informed consent following description of the purpose of the exploratory study and inspection of the laboratory. Although the contract allowed an individual to terminate involvement in the experiment at any time, none did so.
6.2.2 Materials

The following equipment was employed to enable participants to view and rate the violent film stimuli.

*Film segments:* The 19 film segments, each in colour and presented with sound, were selected from commercially available video film and represented material judged by the Australian Office of Film and Literature Classification to be violent in content (utilising the “Restricted” or “R” certificate for violence). The films were screened and assessed for appropriate two-minute segments. The segments were selected on the basis of work conducted by Wilson et al.s., (1998) who created a structural framework to assist in the identification and classification violent acts. Wilson et al., (1998) definition places emphasis on three key elements: intention to harm, the physical nature of harm, and the involvement of animate beings. Each of the film segments met this criterion of violence.

*Assessment Response Sheet:* This response sheet (See Appendix A) allows for the quick and easy obtainment of each participants unique evaluation of 19 film segments. The participant was required to rate each film segment on the following three variables: realism, fantasy and violence on a 5-point Likert scale with 1 representing “not at all” and 5 representing “very much so”. In addition to reporting quantitative their perceptions of the film on the four variables, respondents were also provided with room for quantitative commentary and instructed to indicate their gender and age.

6.2.3 Procedure

Ethics approval was obtained from Deakin University to proceed with the study (Appendix B). Participants were recruited from the general community through personal contacts, notices posted around the Melbourne Campus of Deakin
University, and through announcements made at the beginning of lectures. Potential participants were invited to participate in a study “investigating the habituation of individuals emotional and physiological responses to filmed violence”. Prior to obtaining informed consent, participants were informed that the study would assess their reactions to violent stimuli. Participants were provided with a plain language statement (Appendix C), which they were asked to read before signing the consent form (Appendix D). Participants then received further verbal reassurance that their participation was completely anonymous and that they were free to withdraw from the study at any time. At this point contact numbers for counseling services were provided in the event that any of the participants were distressed by their participation. Following obtainment of informed consent, participants were seated in an armchair in the practical room directly facing the television.

The participant was then requested to read a set of standardized instructions (Appendix D) describing the procedure and administered an Assessment Response Sheet. During this time the experimenter was available for questions and clarification of any uncertainties. The experimenter then invited the participant to wear the headphones, following this the experimenter proceeds to the lab room. After two minutes had elapsed, the video containing the film-segments commenced. The participants were then required to watch the 19 film segments (see Table 1).
At the end of each film segment a time provision was made for the participant to subjectively rate the film viewed. The participant was provided with an assessment response sheet, which allowed for videos to be rated on the variables of fantasy and realism. All ratings were made using a five point scale ranging from 1 – “not at all” through to 5 – “extremely”. After the viewing of all nineteen segments the video tape
was ceased and the headphones were removed from the participant. Following this
the participant was informed that the experiment had ended. The experimenter then
debriefed the participant as to the nature and purpose of the study, and asked whether
they had any questions relating to the study. Finally the experimenter acknowledged
much gratitude for the time invested in participation.

6.3 Results

Prior to analysis, data checks were conducted using SPSS for Windows (Version
10.0) program on a PC. The variables were examined for accuracy of data entry and
missing values. In statistical analysis, using the means execution command,
descriptives (mean, standard deviation, minimum and maximum) for each of the 19
films were generated. These analyses allowed for the comparison of each film on the
specific variables of realism, fantasy and violence. The data were then aggregated to
provide a rank order of the film stimuli.

Inspection of table 2 identifies that the film segment Once were Warriors was
reported to be considered the most realistic depiction of violence.
Table 2. Film stimuli ranked on the variable of realism.

<table>
<thead>
<tr>
<th>Film Stimuli</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminator 2</td>
<td>1</td>
<td>.125</td>
</tr>
<tr>
<td>Fight Club</td>
<td>1.5</td>
<td>.607</td>
</tr>
<tr>
<td>Die Hard</td>
<td>1.55</td>
<td>.605</td>
</tr>
<tr>
<td>Snatch</td>
<td>1.58</td>
<td>.494</td>
</tr>
<tr>
<td>Romper Stomper</td>
<td>1.65</td>
<td>.587</td>
</tr>
<tr>
<td>Scream 2</td>
<td>1.7</td>
<td>.657</td>
</tr>
<tr>
<td>187</td>
<td>1.95</td>
<td>.605</td>
</tr>
<tr>
<td>Resivour dogs</td>
<td>2.2</td>
<td>.410</td>
</tr>
<tr>
<td>Pulp Fiction</td>
<td>2.3</td>
<td>.631</td>
</tr>
<tr>
<td>Fatal Attraction</td>
<td>2.3</td>
<td>.571</td>
</tr>
<tr>
<td>Basic Instinct</td>
<td>2.45</td>
<td>.759</td>
</tr>
<tr>
<td>Seven</td>
<td>2.55</td>
<td>.605</td>
</tr>
<tr>
<td>Higher Learning</td>
<td>2.75</td>
<td>.639</td>
</tr>
<tr>
<td>Untouchables</td>
<td>3</td>
<td>.725</td>
</tr>
<tr>
<td>Sleepers</td>
<td>3.2</td>
<td>.523</td>
</tr>
<tr>
<td>Chopper</td>
<td>3.2</td>
<td>.523</td>
</tr>
<tr>
<td>Life is Beautiful</td>
<td>3.45</td>
<td>.724</td>
</tr>
<tr>
<td>Schindlers List</td>
<td>4</td>
<td>.725</td>
</tr>
<tr>
<td>Once were warriors</td>
<td>4.2</td>
<td>.662</td>
</tr>
</tbody>
</table>

The results of the aggregation, which provided a rank order of the violent film stimuli according to ratings on the variable of fantasy identified that *Terminator 2* was perceived to be the most representative of fantasy content depicted within a scene of violence.
Table 3. Film stimuli ranked on the variable of Fantasy content.

<table>
<thead>
<tr>
<th>Film Stimuli</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Instinct</td>
<td>1.05</td>
<td>.759</td>
</tr>
<tr>
<td>Schindlers List</td>
<td>1.10</td>
<td>.725</td>
</tr>
<tr>
<td>Once were warriors</td>
<td>1.10</td>
<td>.662</td>
</tr>
<tr>
<td>Life is Beautiful</td>
<td>1.20</td>
<td>.724</td>
</tr>
<tr>
<td>Untouchables</td>
<td>1.25</td>
<td>.725</td>
</tr>
<tr>
<td>Pulp fiction</td>
<td>1.45</td>
<td>.631</td>
</tr>
<tr>
<td>Snatch</td>
<td>1.65</td>
<td>.494</td>
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<tr>
<td>Sleepers</td>
<td>1.70</td>
<td>.523</td>
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<tr>
<td>Higher Learning</td>
<td>1.90</td>
<td>.639</td>
</tr>
<tr>
<td>Fight Club</td>
<td>2.15</td>
<td>.607</td>
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<tr>
<td>Scream 2</td>
<td>2.30</td>
<td>.657</td>
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<tr>
<td>Fatal Attraction</td>
<td>2.30</td>
<td>.571</td>
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<td>Seven</td>
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<td>.605</td>
</tr>
<tr>
<td>Romper Stomper</td>
<td>2.50</td>
<td>.587</td>
</tr>
<tr>
<td>187</td>
<td>2.75</td>
<td>.605</td>
</tr>
<tr>
<td>Reservoir Dogs</td>
<td>2.75</td>
<td>.410</td>
</tr>
<tr>
<td>Die Hard</td>
<td>3.25</td>
<td>.605</td>
</tr>
<tr>
<td>Chopper</td>
<td>3.50</td>
<td>.523</td>
</tr>
<tr>
<td>Terminator 2</td>
<td>4.10</td>
<td>.000</td>
</tr>
</tbody>
</table>

The results of the aggregation, which provided a rank order of the violent film stimuli according to ratings on the variable of realism identified that *Once were Warriors* was perceived to be the most realistic depiction of violence.
Table 4. Film stimuli ranked on the variable of Violence.

<table>
<thead>
<tr>
<th>Film Stimuli</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Instinct</td>
<td>1.95</td>
<td>.394</td>
</tr>
<tr>
<td>Seven</td>
<td>2.35</td>
<td>.489</td>
</tr>
<tr>
<td>Die Hard</td>
<td>2.45</td>
<td>.510</td>
</tr>
<tr>
<td>Snatch</td>
<td>2.70</td>
<td>.571</td>
</tr>
<tr>
<td>187</td>
<td>2.70</td>
<td>.801</td>
</tr>
<tr>
<td>Higher Learning</td>
<td>2.80</td>
<td>.696</td>
</tr>
<tr>
<td>Untouchables</td>
<td>2.85</td>
<td>.813</td>
</tr>
<tr>
<td>Pulp Fiction</td>
<td>2.90</td>
<td>.641</td>
</tr>
<tr>
<td>Fatal Attraction</td>
<td>2.90</td>
<td>.553</td>
</tr>
<tr>
<td>Sleepers</td>
<td>3.00</td>
<td>.725</td>
</tr>
<tr>
<td>Scream 2</td>
<td>3.10</td>
<td>.553</td>
</tr>
<tr>
<td>Fight Club</td>
<td>3.15</td>
<td>.933</td>
</tr>
<tr>
<td>Romper Stomper</td>
<td>3.30</td>
<td>.571</td>
</tr>
<tr>
<td>Schindlers List</td>
<td>3.40</td>
<td>.598</td>
</tr>
<tr>
<td>Chopper</td>
<td>3.80</td>
<td>.616</td>
</tr>
<tr>
<td>Life is Beautiful</td>
<td>3.85</td>
<td>.745</td>
</tr>
<tr>
<td>Terminator 2</td>
<td>4.00</td>
<td>.649</td>
</tr>
<tr>
<td>Resivoir Dogs</td>
<td>4.10</td>
<td>.718</td>
</tr>
<tr>
<td>Once were warriors</td>
<td>4.25</td>
<td>.639</td>
</tr>
</tbody>
</table>

An analysis of the films rated according to how violent they were perceived identified that the film *Once were Warriors*, which was rated as the most realistic depiction of violence, was also identified as the most violent film. The film rated as most characteristic of a fantasized violent depiction, *Terminator 2* was also classified as being heavily violent.
6.4 Discussion

The current exploratory study identified the violent film stimuli to be employed in the subsequent studies. The selection of films was assisted by the employment of Wilson et al., (1998) content analysis framework which ensures consistency between studies and minimizes the effect of methodological differences. Consequently each of the stimuli selected in the subsequent studies possess the three key elements of violence as defined by Wilson et al., (1998) which includes intention to harm, the physical nature of harm, and the involvement of animate beings. The nature of the identified violent stimuli represents actual physical aggression directed at living beings. Such physical action lies at the heart of any conception of violence, and it is anticipated that limiting the definition to this type of portrayal (as opposed to including, for example, just verbal aggression that may possible cause emotional harm) renders it a conservative measure of film violence.

Whilst the major aim of the current study was to identify culturally and socially relevant depictions of filmed violence, a secondary desire was to evaluate the film segments with regard to the contextual features of realism and fantasy. In addition to evaluating the extent of violence, the exploratory study further distinguished each film stimuli according to the contextual feature of realism and fantasy. It was considered imperative to distinguish, classify and assess the effect of contextual features on subsequent emotional response to filmed violence given the knowledge base, which indicates that certain contextual features associated with violent depictions have the propensity to significantly increase the risk of a harmful effect on the audience. A goal of the thesis is to distinguish portrayals of violence most likely to contribute to effects generally considered as anti-social or harmful. As previously noted, the area of effect upon which the current study will focus is the habituation of emotional variables to filmed violence.
From the exploratory study four violent film segments were identified to be employed in the subsequent studies to assess the habituation of emotional response. Two studies will be conducted each utilizing two violent stimuli. The first experimental study will employ the two film stimuli, which were rated as the most realistic depiction of filmed violence. The selected include *Once Were Warriors*, which will be used as the represented stimulus and *Chopper*, which will serve as the novel violent stimuli. The second experimental study will be interested in assessing the habituation of emotional response to a fantasized depiction of filmed violence. *Terminator 2* was rated as the most fantasized depiction of filmed violence and will be employed as the stimulus to be presented across time. A segment from the film *Chopper* will be employed as the novel violent stimulus to assess for habituation, the effect of novelty and dishabituation.

The current exploratory study has allowed for the selection of film stimuli to be employed in the subsequent experimental studies to assess the emotional habituation of filmed violence with a consideration of two specific contextual features, realism and fantasy. The process of selection was guided by the work of Wilson et al., (1998) to ensure that the film stimuli was considered reflective of violence as it is currently conceptualized within the literature. Following the initial selection of the violent film stimuli, the samples of segments were then subject to an evaluation of contextual features to determine which were the most representative of a realistic and fantasized depiction. This process allowed for the stimuli to be not only theoretically appropriate but also culturally and socially relevant.
CHAPTER 7.

STUDY 2: IDENTIFICATION OF EMOTIONAL HABITUATION TO FILMED VIOLENCE

7.1 Introduction

Many individuals experience changes in emotional response whilst viewing violent film. This study used the eyeblink startle response proposed by Vrana, Spence and Lang (1988) to explore the habituation of emotional variables to filmed violence. Whilst prior research into the consequences of viewing violence has identified consistently that violence does affect viewers’ attitudes, values and behaviour (Comstock, 1991; Cantor, 2000; Dunand, Berkowitz & Leyens, 1984; Geen, 1994, 1998; Pennell & Browne, 1999; Roberts, 1985; Wilson et al., 1998), little empirical research has examined the habituation of emotional response objectively, or considered the mediating effects of individual differences. A limitation in current research investigating the effects of violence is that much of it does not account for important individual differences. Through the acquisition of the current knowledge base, research has identified that the relationship between filmed violence and an individuals’ subsequent response is a multifaceted, highly complex and diversified one. Subsequently, the aim of the current study is to explore the habituation of emotional response to filmed violence with a consideration of the mediating factors, which may affect individuals’ response.

The purpose of this study is, therefore, to further extend the literature by examining the impact of individual differences, specifically, state-trait aggressiveness, psychoticism, neuroticism and extraversion on the mediating effects of exposure to media violence. A summary of prior research into the employment of the startle eyeblink response to objectively measure emotional response will be presented first.
An examination of factors thought to influence emotional response, personality, anger and aggressiveness, and gender will follow.

7.2 Startle Eyeblink Response

A large body of research (e.g. Fillion, Dawson & Schell, 1998; Jansen & Frijda, 1994; Koukounas & McCabe, 2000; Koukounas & Over, 1999; Lang, Bradley, Cuthbert & Patrick, 1992) exists which demonstrates that the eyeblink startle response can be influenced by prevailing emotional states. There is a considerable amount of evidence supporting the employment of the eyeblink startle response as a physiological measure of emotion (Cuthbert, Patrick, & Lang, 1991; Grillon & Davis, 1995). The literature identifies that the magnitude of the startle response reflect the match in emotional content between the stimulus and the unexpected probe presented during that stimulation. Emotional content is categorised as either appetitive (pleasant) or aversive (unpleasant). The eyeblink startle response is augmented when the attended to (foreground) stimulus and the unexpected probe match in affective content, and diminished when they differ in emotional content (Vrana, Spence & Lang, 1988).

A study investigating gender differences in emotional responses to violent film identified that startle magnitude paralleled the subjective emotional processing of the stimulus. It was demonstrated that eyeblink startle response increased as the positive feelings associated with the violent film diminished. Startle magnitude was also found to increase as respondents experienced greater anxiety and disgust in response to the violent film. (Koukounas & McCabe, 2000).
In the current study, Vrana, Spence and Langs (1988) eyeblink startle response was used to measure objectively individuals’ emotional response to filmed violence. It was expected that respondents would show a correlation between subjective emotional responses to violent stimuli and the magnitude of the eyeblink startle response.

7.3 Personality

There is some evidence that personality may be a factor in how arousing individuals find scenes of violence (Gunter, 1983; Johnson et al., 2000; Kiewitz & Weaver, 2001). Some individuals respond to violent film as an aversive emotional experience and are more vulnerable to its negative effects, while in other individuals, violent film evokes an appetitive emotional response. Studies of individual differences between viewers in their responses to violence have typically been extremely limited in the depth to which personality mediators of violence judgements have been measured. It has been noted frequently that there is a need for a systematic and comprehensive examination of the impact of TV/filmed violence within a broad theoretical framework, which incorporates, standardised, tried and tested measures of personality (Brown & Cantor, 2000; Donald, 2000; Hein, 2000). Eysenck and Nais (1978) suggested that Eysenck’s three-dimensional model of personality (Eysenck & Eysenck, 1969; 1975), the constituent factors of which are Neuroticism (N), Extraversion (E) and Psychoticism (P) could serve as well as any in this respect.

Of the existing limited research examining the effects of Eysenck’s personality dimensions on perceptions of filmed violence, neuroticism has been identified as most powerfully related to viewers’ perceptions (Kiewitz & Weaver, 2001). The only relevant studies located in a literature review conducted for the current thesis were the earlier work of Gunter and Furnham (1983) and Frost and Stauffer (1987) who found
that there was a tendency for individuals who scored high on neuroticism to rate violent materials as more violent, frightening and serious than those who scored lower. The term seriousness was employed not to refer to the perceived intensity of the violence, but related more to emotionally based reactions such as how disgusted or personally disturbing the scenes were perceived to be. Violence, and those scoring high on psychoticism, neuroticism, and extraversion found violence more humorous less frightened those with higher psychoticism scores. It was expected that individual variation on N, E, and P dimensions would moderate perceptual evaluations of the violent portrayals.

### 7.4 Anger and Aggressiveness

Studies exploring the impact of exposure to violence while accounting for trait-anger and aggression have identified a mediating effect. High trait aggressive individuals generally display more callous and hostile tendencies in their perceptions of interpersonal conflicts than low trait-aggressive individuals (Kiewitz & Weaver, 2001). In addition, individuals scoring low in trait aggressiveness report being more disturbed by violent segments than their high-trait aggressive counterparts. State and trait anger, as measured by the STAXI-2 was expected to influence an individuals’ emotional response to filmed violence.

### 7.5 Gender

Although a small number of investigations of violence in film have begun to highlight the role of individual differences, findings are inconsistent and difficult to reconcile between studies because of methodological differences (Lande, 1993). This issue is especially salient with respect to gender differences in emotional response to violent film. The expectation is that there are clear differences in male and female responses
to violent films (Linz et al., 1988). Evidence from the literature has consistently identified that men and women react differently to violence. It has been identified that men are more likely than women to rate segments taken from violent videotapes as pleasurable, amusing, realistic, and emotionally arousing (Blanchard, Graczyk, & Blanchard, 1986) and are more likely to behave aggressively following exposure to violent film (Harris, 1994). Corroborating work was identified when Koukounas and McCabe (2000) reported that males experienced greater positive feelings, entertainment, and curiosity to the violent film than the females, who reported more feelings of disgust, boredom and anger. Taken together, these findings suggest a gender difference in the emotional processing of violence in film. Koukounas and McCabe (2000) recognise, however, that it is unclear whether these differences occur at the physiological level, the subjective level or both the physiological and subjective levels. The current study attempts to address this deficit in the research by conducting psychophysiological research into filmed violence, with measures of emotional processing being assessed concurrently with ongoing film stimulation.

7.6 Summary

Prior research has shown that viewing violent films has been shown to result in a variety of health and social problems. Meta-analyses show that media-violence viewing consistently is associated three main classes of effects: (1.) increases in aggressive behaviour and/or changes in attitudes and values favouring the use of aggression, (2.) emotional desensitisation toward victims of violence and a greater willingness to tolerate increasing levels of violence in society, and (3.) fearfulness. The research on desensitisation to violence has shown that although observers react initially with relatively intense physiological and psychological responses to scenes of violence, habituation can occur over prolonged or repeated exposure. However, little is known about the effect of prolonged and repeated viewing of violence on an
individual. Consequently, the current study aims to explore the process of emotional habituation to repeated viewing of violent film.

Anecdotally a process of habituation has been proposed, however, empirical investigations of this hypothesis are lacking. Studies examining habituation have typically assessed emotions through subjective self-report. The current study will, similarly, assess emotionally response through respondents’ self-reports. More recently, however, the eyeblink startle response has been adopted in numerous studies to provide an objective measure of emotional arousal. It is proposed that the eyeblink startle response consists of a set of involuntary responses, which can be influenced by prevailing emotional states. The eyeblink startle response will also be employed in the current study to assess emotional response.

The aim of Study 1 was to assess the habituation of emotional variables to filmed violence. In addition, the chosen methodology allowed for a comparison of subjective self-report with the new objective eyeblink startle response in the measurement of emotional variables. Furthermore, the study attempted to systematically and comprehensively investigate the significance of individual differences as mediators of audience perceptions and emotional arousal.

7.7 Research hypotheses

Hypotheses for the study were:

It is hypothesized that repeated exposure to violent film will result in a decline of the five emotional responses, disgust, positive feelings, entertained, anxiety, and anger, as measured by subjective self-report and the magnitude of the startle eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli.
It is hypothesized that respondents will demonstrate gender differences in the process of habituation to violent film material. It is anticipated that females will initially react with more intense physiological and psychological reactions to the violent film than males. Furthermore it is expected, however, that the process of habituation will parallel for the genders. Specifically, it is anticipated that females will report a more aversive experience with greater feelings of disgust, anxiety and anger. Physiologically, it is expected that females will demonstrate an augmented startle response magnitude to the violent film relative to males both initially and across trials.

It is hypothesized that respondents will show a correlation between subjective emotional responses to violent stimuli and the magnitude of the eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli. Specifically, it is expected that startle magnitude will decrease as respondents experience reduced anxiety, disgust and anger in response to the violent film.

It is hypothesised that an assessment of personality and state-trait anger will have a mediating effect on individuals’ emotional response to the filmed violence.

7.8 Method

7.8.1 Participants

A sample of thirty participants, 14 men (mean age 18.67 years, SD .82) and 16 women (mean age 19.81 years, SD 3.45) were recruited through advertisements placed on the noticeboards of a large metropolitan university and in student newspaper publications. All subjects provided informed consent following description of the recording requirements and inspection of the laboratory. Although
the contract allowed an individual to terminate involvement in the experiment at any time, none did so.

### 7.8.2 Materials

A battery of questionnaires were administered to participants and completed individually which elicited the following information:

1. **Stait-trait anger scale:** The experience, expression, and control of anger for each individual was assessed using the State-Trait Anger Expression Inventory-2 (STAXI-2) (Spielberger, 2001). The recently revised 57-item STAXI-2 consists of six scales, five subscales and an Anger Expression Index, which provides an overall measure of the expression and control of anger. The STAXI-2 is a self-report measure containing questions regarding both the individuals state and trait levels of anger and actions associated with this emotion. The participants were presented with questions such as: “I feel irritated”, “I have a fiery temper” and “I strike out at whatever infuriates me”. Participants were then required to answer these questions as “Not at all”, “Somewhat”, “Moderately so”, or “Very Much so”. The STAXI-2 has been shown to be internally consistent (.83) and has demonstrated concurrent, convergent and divergent validity (Spielberger et al., 1985). This scale will be employed to assess for the possible mediating effects of anger on individuals’ emotional reactivity to filmed violence.

2. **Eysenck Personality Questionnaire-Revised (EPQ-R):** The well validated EPQ-R is widely used as a research tool for assessing individual differences. The EPQ-R has proven to be a useful self-report measure completed without difficulty when time is limited (Gunter & Furnham, 1983). The 48-item self-rating EPQ-R provides a convenient measure of the major fundamental defining aspects of
personality, Neuroticism (N), Extraversion (E) and Psychoticism (P). Each of the 48 items is scored True or False according to the validity of each statement for the respondent. Respondents are asked to circle the response, which for the majority reflects their normal functioning. Once completed the EPQ-R yields a score for each of the three personality dimensions and a Lie scale, which attempts to measure the tendency to ‘fake good’. Test-retest values are reported to be .93 for P, .92 for N and .76 for L (Eysenck & Eysenck, 1991). The EPQ-R has been widely validated in the use of assessing personality (Corulla, 1987; Johnson, Kim & Danko, 1989; Torrubia & Muntaner, 1987; Williams, 1989). In addition, the EPQ-R has been used frequently for the assessment of individual differences into the effects of filmed violence (Frost & Stauffer, 1987; Gunter, 1983; Kiewitz & Weaver, 2001).

The following equipment was subsequently employed to assess each individuals’ emotional and physiological responses to the violent film stimuli:

Film segments: The two film segments, each in colour and presented with sound, were those identified in the earlier exploratory study. The film excerpts were taken from commercially available video film and represented material judged by the Australian Office of Film and Literature Classification to be violent in content (utilising “Restricted” or “R” certificate for violence and identified by the exploratory study (Study one) as both violent and realistic. The segment used as the habituation stimulus ‘Once were warriors’ (on trials 1 – 10 and 13 - 14) depicted a scene of both verbal and physical abuse perpetrated by a male onto a female. The novel stimulus Schindlers’ List (presented on trials 11 – 12) showed a man on a balcony randomly shooting individuals, both male and female. Each film segment lasted 120 seconds, and there was an interstimulus interval of 60 seconds. Respondents viewed the materials on a comfortable recliner chair. All contact between respondents and the experimenter were through an intercom system.
Computer program equipment: The eyeblink component of the startle response was measured by recording electromyographic (EMG) activity from the orbicularis oculi muscle directly above and below the left eye. A ground electrode was placed on the left ear. The raw EMG signal was amplified and integrated using MacLab biomedical equipment. The magnitude of the startle eyeblink was indexed by the difference in EMG response level immediately prior to and following the white noise burst (startle stimulus). The eyeblink startle response, which was used to assess emotional processing, was evoked by a 50 millisecond burst of 95 dB white noise with instantaneous rise time presented to the subjects through stereophonic headphones.

Respondents were informed at the beginning of the test session that they would occasionally hear an intense, but brief burst of white noise through the headphones. The respondents were instructed to disregard this noise and to continue attending to the film. To reduce the likelihood of habituation within the startle response system itself, white noise was presented on only 5 occasions across the 14 trials in the session. Onset of this stimulus was either early (20 sec), middle (50 sec), or late (80 sec) in the film sequence for each of the two types of stimuli, which provided an unpredictability regarding its onset. For all subjects the 5 probes were scheduled on trials 1 (onset 20 sec), 4 (onset 50 sec), 8 (onset 80 sec), 11 (onset 20 sec) and 13 (onset 80 sec).

Subjective assessment to violent film scale: At the end of each sequence, participants were asked to verbally rate the material on a scale from 1 ‘not at all’ to 5 ‘extremely’ with respect to the following eight variables: subjective arousal, positive feelings, anxiety, disgust, entertainment, boredom, anger and curiosity. Participants were also asked to identify what it was about the film material, which produced their particular responses.
7.8.3 Procedure

Ethics approval was obtained from Deakin University to proceed with the study (Appendix B). Participants were recruited from the general community through personal contacts, notices posted around the Melbourne Campus of Deakin University, and through announcements made at the beginning of lectures. Potential participants were invited to participate in a study “investigating the habituation of individuals emotional and physiological responses to filmed violence”. Prior to obtaining informed consent, participants were informed that the study would assess their reactions to violent stimuli and they would, during the procedure, be required to be fitted with two electrodes around one of their eyes. Participants were provided with a plain language statement (Appendix C), which they were asked to read before signing the consent form (Appendix D). Participants then received further verbal reassurance that their participation was completely anonymous and that they were free to withdraw from the study at any time. At this point contact numbers for counseling services were provided in the event that any of the participants were distressed by their participation. Following obtainment of informed consent, participants were provided with the battery of questionnaires that they were instructed to complete. These included (in order): The EPQ-R and STAXI-2. To ensure anonymity and confidentiality the completed questionnaires were then handed to the examiner who then coded and stored separately from the consent form.

After administration and completion of the questionnaires, participants were seated in an armchair in the practical room directly facing the television. The participant was then requested to read a set of standardized instructions (Appendix E) describing the procedure. During this time the experimenter was available for questions and clarification of any uncertainties. The experimenter then attached the electrodes to and invited the participant to wear the headphones. At this point the experimenter
proceeds to the lab room to commence measurement of physiological responses. After two minutes had elapsed, the video containing the film-segments commenced. Participants were required to watch the same segment ten times, followed by an eleventh novel stimuli and a twelfth original stimulus. Finally the original stimulus was presented on trials thirteen and fourteen. During each segments both subjective reports of emotional arousal and a physiological response was obtained. After the viewing of all twelve segments the video tape was ceased, the electrodes and headphones were removed from the participant. Following this the participant was informed that the experiment had ended. The experimenter then debriefed the participant as to the nature and purpose of the study, and asked whether they had any questions relating to the study. Finally the experimenter acknowledged much gratitude for the time invested in participation.

7.8.4 Data Reduction

The current study was interested in examining the habituation of emotional response to filmed violence over repeated exposure. To assess the effect of repeated exposure to filmed violence, the independent variable of trial, with five levels was employed as the within subjects factor. A preliminary factor analysis was conducted to determine factor loadings for the subjective variables. No significant groupings into positive versus negative variable was detected. In the analysis gender was employed as the between subjects independent variable with two levels (male and female) to allow for the concurrent assessment of gender effects. The dependent variable under examination was emotional response. Emotional response was measured subjectively and defined as anxiety, disgust, positive, entertained, bored and anger. In addition, an objective measure of emotion was recorded through measurement of the eyeblink startle response.
The session yielded 14 measures of subjective emotional response for each of the five variables and 5 recordings of startle response level for each subject. In statistical analysis the extent to which habituation had occurred was assessed by analysing measures on trials 1–10 in blocks of three trials (trials 1-3, 4-7, and 8 – 10), using mean response level per trial as the dependent variables. Novelty effects were studied by comparing the mean response level per trial across trials 11–12 with the mean response level per trial across trials 8 – 10. Whether dishabituation occurred was established by comparing mean response level per trial across trials 13 – 14 with mean response level per trial across trials 16 – 18.

Due to the nature of the study planned comparisons were executed to identify specifically the effect of habituation, novelty and dishabituation (See Appendix E – Syntax file). Separate post-hoc analysis using planned comparisons were undertaken in order to determine whether response level per trial varied significantly over trials 1–10 (the test for habituation), between trials 9 – 10 and trials 11 – 12 (the test for novelty), and between trials 9 – 10 and trials 13 – 14 (the test for dishabituation) (See table 5).

The dependent variables in each analysis were disgust, positive feelings, entertainment, anxiety, anger and magnitude of the startle response. On occasions where a significant time by gender interaction was identified, planned comparison was conducted separately by each gender. If, however, there was no significant interaction between genders evidenced through the ANOVA the planned comparison was carried out for the sample, thus, reducing redundant information.
Table 5. Trial blocks employed for planned comparison analysis

<table>
<thead>
<tr>
<th>Trial</th>
<th>Trial Block</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Habituation</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
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<td>5</td>
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<td>6</td>
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<td>7</td>
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<td>8</td>
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<td>9</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>Novelty</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>5</td>
<td>Dishabituation</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prior to analysis, data checks were conducted using SPSS for Windows program (version 10.0) on a PC (Norusis, 1993, 2001). The variables were examined for accuracy of data entry, missing values, and to check that they met the assumptions of multivariate analyses. A small number of missing values were located within the STAXI-2 and EPQ-R. Upon looking at the data set, it appeared that these missing values were randomly scattered. Since a small amount of missing data does not usually affect results, missing values were replaced with the individual’s mean score for remaining items on those scales to allow the cases to remain in the analysis (Tabachnick & Fidell, 1996). Normality of the groups was assessed using both statistical and graphical methods to determine skewness and kurtosis.

A series of seven mixed/split plot repeated measure ANOVAs were conducted to examine emotional response over time and across gender. To reduce the risk of making a Type I error or falsely rejecting the Ho, Bonferroni adjustments were made
to alpha (α/number of contrasts). The following assumptions were checked before the analysis were conducted:

- **Univariate and multivariate normality:** the data for each dependent variable was assessed for normality using a combination of histograms and stem and leaf displays. The normality was also confirmed by the Kolmogorov-Smirnov statistic, deviation from normality was assessed at p < .05 level. Multivariate outliers were assessed using Mahalanobis distance, where none of the values exceeded the chi-squared statistic.

- **Homogeneity of variance-covariance matrices:** Homogeneity of variance was confirmed at both the univariate level using Levene’s test of equality (p > .001), and at the multivariate level using Box’s M test (p > .001).

- **Multicollinearity and Singularity:** The dependent variables were not highly/significantly correlated with one another.

- **Mauchly’s Test of Sphericity** was also observed to ensure that the covariances among treatments be equivalent. When violated adjustments to the F statistic need to be made, in this case Greenhouse-Geisser epsilon (GG) was used. In all analyses sphericity was violated and the GG was less than .75, hence GG correction was used in all data analysis and interpretation.

These tests of assumptions will only be reported if violated, that is, the reader can assume that the assumptions underpinning analysis were met unless stated otherwise.
7.9 RESULTS

The analysis presented here will follow the hypothesis as set out in the summary section 7.8. The first section will be concerned with examining the effect of repeated exposure to violent film on emotional response. Emotional response is defined by the following subjective self-reported variables: disgust, positive feelings, entertained, anxiety and anger, and an objective measure of emotion was obtained using the eyeblink startle response. Furthermore, the analysis was interested also in examining and comparing the patterns of emotional response over time and between genders. The analysis will proceed accordingly, presenting the findings of the five subjective variables. Following this, the analysis will focus on the objective startle eyeblink response. Each of the five emotional variables will be examined to assess for habituation, the effect of novelty and dishabituation. The analysis will then focus on examining the relationship between the subjective and objective response measures of emotion. Finally, the results section will be interested in assessing the mediating effects of individual differences on viewers’ perceptions and reactions to the violent film portrayals.

7.9.1 An assessment of the effect of repeated exposure to violent film on emotional response, by gender.

7.9.1.1 Disgust

The subjective response of disgust was examined over time. Means for the 5 trial blocks are displayed for the genders in Figure 4.
Figure 4. Mean levels of reported disgust to filmed violence across trial blocks for males and females.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>3.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.57</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2.70</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.93</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>4.28</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.56</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3.97</td>
</tr>
</tbody>
</table>

Figure 4 indicates that, on the variable of disgust, females reacted more intensely to the violent film than males. Females (MEAN = 3.69, SD = .15) on average reported higher levels of disgust than males (MEAN = 2.70, SD = .16), and this occurred across all trial points. Across the first trial block, the average females self-reported level of disgust was calculated to be 4.3. In comparison males reported, on average, disgust level of 3.1. It can be seen, therefore, that females initially reacted with more intense psychological reactions to the violent film than did males. This pattern of
heightened response by females was evidence over the subsequent trial blocks. This finding was supported by a significant main effect for gender, $F(1,28) = 19.33, p < .001, \eta^2 = .41$.

What is interesting, however, although females displayed higher levels of disgust, the pattern of response was paralleled for the two groups. That is, the interaction of gender and time was not significant, $F(2, 66) = .265, p = .8, \eta^2 = .009$. There was, however, a significant main effect for time, $F(2, 66) = 17.19, p < .001, \eta^2 = .38$. This is illustrated in figure 4 where there is a decrease in self-reported disgust over trials 1 – 3, a recovery with the novel presented stimuli during trial 4, and with reinstatement of the original stimulus on trial 5, disgust levels were higher than they had been prior to novel stimulation.

Planned comparisons revealed that response levels per trial varied significantly across the trial blocks demonstrating habituation, novelty and dishabituation of self-reported disgust. See Table 7.

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
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<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 40.51, p &lt; .001, \eta^2 = .98$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 10.36, p = &lt; .05, \eta^2 = .27$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 68.63, p &lt; .001, \eta^2 = .71$</td>
</tr>
</tbody>
</table>

The results of the planned comparisons analyses (See Table 7) reveals that respondents reported a significant, steady decline in self-reported disgust across trial blocks 1 – 3 demonstrating habituation of response. A comparison of disgust levels at trial block 3 with the introduction of the novel stimulus at trial block 4 identified significant differences in response. Novel stimulation was accompanied by a recovery in response. Reinstatement of the original stimuli at trial block 5 led to greater levels of self-reported disgust compared to that reported prior to novel stimuli at trial block 3.
7.9.1.2  Positive

The graph presented in figure 5 provides visually the descriptive data specific to males and females positive self-reported feelings over time whilst viewing the violent stimuli.

![Graph showing positive feelings over time for males and females.](image)

*Figure 5.* Mean experienced positive feelings in response to filmed violence across trial blocks for males and females.

| Table 8. Standard error statistics to accompany figure 5 |
|---|---|---|
| Gender | Trial | Standard Error |
| Males   | 1    | 1.43    |
|         | 2    | 1.18    |
|         | 3    | 1.18    |
|         | 4    | 1.80    |
|         | 5    | 1.14    |
| Females | 1    | 1.02    |
|         | 2    | 1.00    |
|         | 3    | 1.03    |
|         | 4    | 1.48    |
|         | 5    | 1.00    |
Figure 5 illustrates that minimal changes were reported in positive feelings across trials one, two, and three, an increase reported at time four, and a decrease at time 5. The analysis identified a significant main effect of time, $F(1, 28) = 18.85, p < .001$, $\eta^2 = .40$. No significant interaction of time and gender $F(1.28, 38.30) = 1.18, p = .3$, $\eta^2 = .04$, or main effect of gender was revealed $F(1, 28) = 4.61, p = .04, \eta^2 = .14$. The analysis shows that the profiles of males and females positive feelings did not differ. Estimated marginal means provide evidence for this, males (MEAN = 1.35, SD = .08), females (MEAN = 1.11, SD = .07).

Table 9 presents the planned comparison analyses, which were conducted to distinguish the effects of habituation, novelty and dishabituation.

Table 9. Planned comparison analyses of self-reported positive feelings over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 8.76, p &lt; .05, \eta^2 = .24$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 22.88, p = &lt; .001, \eta^2 = .45$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 2.01, p = .167, \eta^2 = .07$</td>
</tr>
</tbody>
</table>

The results of the planned comparison analysis (See table 9) reveal that respondents reported significant reductions in experienced positive feelings across trial blocks 1 – 3 demonstrating habituation of response. The effect of novelty was demonstrated by a recovery in response with the introduction of the novel stimulus at trial block 4. The test for dishabituation failed to reach statistical significance. This suggests that respondents level of experienced positive feelings following reinstatement of the original stimulus was not different to that reported immediately prior to novel stimulation.
7.9.1.3 Entertained.

The subjective recordings of individuals' level of entertainment over time whilst viewing violent film is presented in figure 6.

Figure 6. Mean entertainment response to filmed violence across trial blocks for males and females.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.18</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.18</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.16</td>
</tr>
</tbody>
</table>

The graph demonstrates that self-reported ratings of entertainment were varied and fluctuated across the 5 trial point measurements. This was identified as statistically significant when a main effect for time was revealed $F(2, 66) = 32.77, p < .001, \eta^2 = .54$. Figure 6 illustrates that there was a steady decline in self-reported entertained
ratings over trial points one – three. The introduction of the novel stimuli at trial point 4 saw participants reporting increased levels of entertainment. Reinstatement of the original stimulus saw a slight drop in entertainment ratings, however, not lower than levels achieved at time 3. Analysis interested in examining the effect of gender failed to identify any significant interaction $F(2, 66) = .92$, $p = .42$, $\eta^2 = .03$, or main effect $F(1, 28) = 1.27$, $p = .27$, $\eta^2 = .04$. The nature of the results shows that there were no significant differences in the self-reported levels of entertainment between males and females whilst viewing the violent film stimuli over time.

Table 11. Planned comparison analyses of self-reported entertainment levels over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 49.85$, $p &lt; .001$, $\eta^2 = .64$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 74.14$, $p = &lt; .001$, $\eta^2 = .72$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 29.78$, $p &lt; .001$, $\eta^2 = .52$</td>
</tr>
</tbody>
</table>

The results of the planned comparison analysis presented in Table 11 demonstrates the effect of habituation, novelty and dishabituation. These data indicate that with repeated exposure over trial blocks 1, 2 and 3 respondents were less entertained by the violent stimuli presented. Novel stimulation was accompanied by a statistically significant increase in self-reported levels of entertainment compared to that reported prior to novel stimulation.

7.9.1.4 Anxiety.

Due to a violation of Macula’s test of Sphericity ($p < .001$, Greenhouse Geisser [GG] = .70) the GG correction was used to analyse and interpret the data examining the emotional response of anxiety.
Figure 7. Mean anxiety response to filmed violence across trial blocks for males and females.

Table 12. Standard error statistics to accompany figure 7

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.18</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.17</td>
</tr>
</tbody>
</table>

The analysis identified that across all trials females (MEAN = 3.01, SD = .13) reported significantly higher levels of anxiety whilst viewing the violent stimuli than males (MEAN = 1.54, SD = .13). This observation was supported by a significant main effect for gender $F(1, 28) = 64.63, p < .001, \eta^2 = .70$. At trial block one, the average self-reported level of anxiety response was 3.2 for females, compared to 1.8 for males. Females initially reacted more intensely.
than males and this pattern of response remained consistent across all subsequent trial blocks. A significant main effect of time was also identified $F(2, 68) = 14.48, p < .001, \eta^2 = .34$, indicating that there was a change in the anxiety response over the 5 trial blocks. In addition, statistical analyses identified that the profile of the anxiety response style over time differed between gender groups $F(2, 68) = 8.94, p < .001, \eta^2 = .24$. Subsequently, planned comparison analyses to identify the effects of habituation, novelty and dishabituation were conducted separately (See table 13 for males and 14 for females).

Table 13. Planned comparison analyses of self-reported anxiety over time for male respondents

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 13) = 14.12, p &lt; .05, \eta^2 = .52$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 13) = 24.074, p = &lt; .001, \eta^2 = .64$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 13) = 24.08, p &lt; .001, \eta^2 = .65$</td>
</tr>
</tbody>
</table>

A general reduction in self-reported anxiety levels whilst viewing the violent film was recorded over the first three trial blocks for male respondents demonstrating habituation of emotional response. Novel stimulation was accompanied by a small but statistically significant increase in self-reported levels of anxiety. A statistically significant effect of dishabituation was identified.

Table 14. Planned comparison analyses of self-reported anxiety over time for female respondents

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 15) = 10.65, p &lt; .001, \eta^2 = .42$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 15) = 30.24, p = &lt; .05, \eta^2 = .67$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 15) = 23.14, p &lt; .001, \eta^2 = .60$</td>
</tr>
</tbody>
</table>
Similar to the pattern of response to males experienced anxiety, female respondents reported a significant reduction in anxiety across trial blocks 1, 2 and 3. A comparison of anxiety levels at trial block 3 with the introduction of the novel stimulus at trial block 4 identified significant differences in response. Novel stimulation was accompanied by a recovery in response. A comparison of the mean level of anxiety response prior to novel stimulation to the mean level of anxiety response following novel stimulation identified a significant dishabitation effect for anxiety. Observation of the respective means at trial blocks 1 (MEAN = 3.19, SD = .23) and 5 (MEAN = 3.22, SD = .177) reveal that respondents on average reported similar levels of anxiety.

7.9.1.5 Anger.

Mauchly’s Test of Sphericity was violated at p< .001 with a GG of .63. The GG correction was used in analysis and interpretation of the anger response over time to the violent film stimuli.

Figure 8 provides visually information, which suggests that on average, females report higher levels of experienced anger whilst viewing the violent film, and this occurred across all trial blocks.
Statistical analyses confirmed a main effect of gender, $F(1,28) = 38.36, p < .001, \eta^2 = .58$. It was noted that females (MEAN = 3.38, SD = .17), on average, across all trial blocks frequently reported higher levels of experienced anger than their male counterparts (MEAN = 1.82, SD = .18). Despite the observation that females reported higher levels of experienced anger there was no observed difference in the pattern of response for the two genders across time. The interaction of time and gender failed to reach statistical significance, $F(2, 66) = 2.75, p = .06, \eta^2 = .09$. There was, however,
a significant main effect for time, $F(2, 66) = 8.39, p < .001, \eta^2 = .23$, indicating that self-reported levels of anger varied for both groups across the five trial blocks.

Table 16 presents the results of the planned comparison analysis, which examined specifically whether response level per trial varied significantly across trials to demonstrate the effects of habituation, novelty and dishabituation.

Table 16. Planned comparison analyses of self-reported anger over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 40.51, p &lt; .001, \eta^2 = .98$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 10.36, p = &lt; .05, \eta^2 = .27$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 68.63, p &lt; .001, \eta^2 = .71$</td>
</tr>
</tbody>
</table>

The planned comparison analysis examining the emotional response of anger identified that, with repeated exposure respondents’ self-reported levels of experienced anger decreased significantly over the first three trial blocks. The effect of novelty was observed by a small, but statistically significant result which, indicated that on average novel stimulation was accompanied by a recovery in response. Dishabituation was evidenced by higher self-reported levels of anger post novel stimulation than just prior.

7.9.1.6 Eyeblink Startle Response.

Due to a violation in Mauchly’s Test of Sphericity ($p < .001, GG = .51$) the GG correction was employed in analyses and interpretation.

Figure 9 presents the average profile of eyeblink startle response for males and females whilst viewing violent film stimuli across the five trial blocks.
Figure 9. Mean startle eyeblink response to filmed violence across trial blocks for males and females.

Table 17. Standard error statistics to accompany figure 9

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>0.09</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Figure 9 illustrates that the eyeblink startle response changed significantly over the five trial blocks. This was confirmed by a main effect of trial $F(2, 66) = 80.07, p < .001, \eta^2 = .74$. Eyeblink startle response decreased in magnitude across trial blocks one to three, increased with novel stimulation, and was lowered on the fifth trial block. No statistically significant difference in this pattern of response was observed between genders $F(1,28) = 2.09, p = .16, \eta^2 = .07$. This data indicates that the
process of emotional response as measured by the eyeblink startle response was consistent between genders. Furthermore no significant interaction was revealed between trial and gender $F (2, 66) = 1.95$, $p = .15$, $\eta^2 = .65$. The results of the planned comparison analyses examining the effects of habituation are presented in Table 18.

Table 18. Planned comparison analyses of startle eyeblink response over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F (1, 28) = 117.02$, $p &lt; .001$, $\eta^2 = .81$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F (1, 28) = 143.57$, $p &lt; .001$, $\eta^2 = .84$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F (1, 28) = 117.47$, $p &lt; .001$, $\eta^2 = .81$</td>
</tr>
</tbody>
</table>

The planned comparison analysis examining the objective eyeblink startle response identified the effect of habituation, novelty and dishabituation. The eyeblink startle response was observed to significantly decrease over the first three trial blocks. The effect of novelty was demonstrated by a recovery of the eyeblink startle response upon presentation of the novel violent stimuli. Dishabituation was evidenced by an increase in magnitude of the eyeblink response post novel stimulation compared to that obtained just prior.

The current section examined the effect of repeated exposure to violent film on individuals’ emotional response. It was identified that females responded initially with more intense psychological and physiological reactions than did males, and this extended across trial blocks. It is noteworthy, however, that, with the exception of anxiety, the process of emotional response was parallel for both genders. Planned comparison analyses identified the effects of habituation, novelty and dishabituation for both genders.
7.9.1.7 Summary

Emotional arousal, defined by the following subjective self-reported variables: disgust, positive feelings, entertained, anxiety and anger, and the objective measure the eyeblink startle response, For the majority habituated over the course of repeated exposure to violent Film. The analyses revealed that there was a recovery in emotional response with novel stimulation, and with reinstatement of the original stimulus response levels were higher than they had been immediately prior to novel stimulation.

7.9.3 Correlational analyses examining the mediating effects of individual differences

To assess the possible mediating effects of personality and anger/aggressiveness on viewers’ perceptions of violent film portrayals correlational analyses were ran to explore the relationship between the individual differences and emotional responses.

7.9.2.1 STAXI-2

Results of the correlational analysis indicate that a higher score on the stait-anger index is associated with higher levels of absorption ($r = .608, p < .001$), entertainment ($r = .694, p < .001$) and curiosity ($r = .660, p < .001$). This suggests that individuals who were feeling angrier at the time of participation were more absorbed, entertained and curious by the violent film stimuli. No significant correlational relationships between any of the other indices and emotional responses were evident.
7.9.3.2 EPQ-R

Neuroticism: Whilst viewing the violent film stimuli individuals scoring higher on neuroticism reported higher feelings of anger ($r = .480, p < .05$), anxiety ($r = .364, p < .05$) and curiosity ($r = .453, p < .05$) compared to those who scored lower. In addition, a correlational relationship was identified between the personality variable of neuroticism and the emotional response of positive feelings. Individuals scoring higher on neuroticism reported less positive feelings whilst watching the violent film stimuli than did low neurotic scorers.

Extraversion: Variation in viewers’ extraversion score appeared to affect their emotional experience of exposure to filmed violence. The results of the correlational analysis indicate that individuals scoring higher on extraversion are more likely to be angered by the experience ($r = .362, p < .05$). Furthermore these individuals also reported lower levels of entertainment ($r = .466, p < .001$) and curiosity ($r = .480, p < .001$).

Psychoticism: No significant correlational relationships between psychoticism and emotional response to the filmed violence were evidenced.
7.10 DISCUSSION

The discussion in this section is limited to a summary of findings from Study 2. The results in relation to past research will be discussed in the overall discussion, which follows Study 3. Data from this study confirmed that repeated exposure to a realistic depiction of filmed violence results in habituation of emotional response. More specifically, however, respondents demonstrated gender differences in the process of emotional habituation. It was identified that females initially reacted with more intense physiological and psychological reactions to the violent film than males. It was identified that the magnitude of the eyeblink startle response paralleled the subjective emotional processing of the violent film stimulus. The results, however, indicate that the process of habituation was parallel between genders. In addition, the current study illustrated that the personality factor of neuroticism effected viewers’ perceptions and emotional reactions to the violent stimuli. The results of the study, however, did not produce significant evidence to implicate individual differences of state-trait anger as a mediating factor in the emotional response to filmed violence.

7.10.1 Repeated exposure to filmed violence results in habituation of emotional response

Support for the prediction that repeated exposure to filmed violence would result in a decline in both objective and subjective emotional responses was supported by the current study. Repeated exposure to a violent film segment yielded habituation of emotional response on each of the six emotional variables: disgust, positive feelings, entertained, anxiety, anger and startle as demonstrated by a decline in response recorded over the first three trial blocks. Generally, emotional response recovered
when there was novel violent film stimulation, and reinstating the original stimulus led to emotional response being above the level obtained prior to novel stimulation.

Consistent with expectations (Linz et al., 1988; Koukounas & McCabe, 2001) differences in the manner in which men and women responded to the violent film were identified. Men displayed more curiosity and reported greater entertainment and positive feelings in response to the film, whilst women reacted in a more aversive way to the violence than men did. Women reacted initially and overtime with more intense physiological and psychological reactions to the violent film than males. Specifically, the female respondents found the violence more disgusting, and reported that it made them angry and very anxious. This heightened emotional response by females has been previously documented in the literature, with researcher tentatively and cautiously commenting additionally on qualitative data to explain this phenomenon. In their study that identified gender differences in response to filmed violence Koukounas and McCabe (2001) attempted to gain an understanding behind the production of the women’s emotional response. It was identified that the women’s’ aversive emotional response to the violent scenarios were partially motivated by the observation of pain inflicted on a target.

The results of Koukounas and McCabe (2001) are particularly pertinent due to the nature and contextual features of the film stimuli employed in the current study, where a women is being physically and verbally abused. It could be postulated that there is the potential for women to have identified with the target, thus perpetuating women’s feelings of vulnerability and subsequent emotional responses. It would be interesting to determine if manipulating the context of the violent film (perceived realism, identification with the targe of violence) serve to lessen the pronounced differences in emotional response patterns between genders. Whilst gender
differences were implicated in individuals’ emotional response to filmed violence, such that females experienced the stimuli more aversive, the process of emotional response and habituation was parallel for the genders.

7.10.2 Relationship between objective and subjective measures of emotional response.

Consistent with previous research on the eyeblink startle response (Lang et al., 1990; Koukounas & Over, 2000; Koukounas & McCabe, 2001) the current study found that the eyeblink startle magnitude paralleled the subjective emotional processing of the violent film stimulus. It was found that the eyeblink startle to white noise was initially augmented when individuals began to watch the violent film (aversive stimulation). At this point subjective reports of emotional response indicated that respondents were experiencing high levels of anxiety and disgust. Over repeated presentation of the film stimuli, the eyeblink startle was observed to diminish, this pattern corresponded with subjective emotional reports, which were being rated as less anxiety provoking and disgusting. Certainly, anxiety and disgust are “aversive” emotional responses, and their relationship with the eyeblink startle is consistent with the research of Lang et al., (1990). The startle magnitude was found to increase upon viewing the novel violent film stimuli, which corresponded with respondents reporting less positive feelings, greater anxiety and disgust in response to the violent film. This augmentation of startle magnitude during violent film presentation was observed to be, on average, greater in female than male participants, probably elicited by the fact that women found the violence more disgusting, anxiety provoking and anger-inducing than did males.
7.10.3 The mediating effects of individual differences

Consistent with prior research, the personality factor of neuroticism was identified to be most implicated in viewers’ perceptions of and emotional reactions to filmed violence (Gunter & Furnham, 1983; Gunter, 1985). Emotionally sensitive individuals (high N scorers) reported greater anger, anxiety and less positive feelings whilst viewing the violent film than did less-sensitive individuals. The factor of extraversion affected individuals' reported-reported levels of anger, entertainment and curiosity whilst watching the violent film. A higher score on E was correlated with higher levels of anger, lower levels of curiosity and entertainment. It was expected, based on previous research (Gunter, 1983) that P would be identified as a mediating factor in individuals emotional response to filmed violence, specifically the experience of anxiety. No significant relationships between P and emotional response were identified.

It was identified that positive feelings and disgust toward the violence correlated with the age of the participant. Positive feelings to violence increase with age, and feelings of disgust to the violence decrease with age. Furthermore, the current study also found age to be correlated with self-reported levels of boredom and entertainment, such that older individuals reported being more entertained and less bored by the violent stimuli compared to their younger counterparts. This would suggest that habituation to violent film may develop as one gets older and is, presumably exposed to more violence.

7.10.4 Summary

Repeated exposure to filmed violence leads to the habituation of emotional response. In the current study, repeated exposure to a violent film segment yielded habituation
on emotional response, emotional response recovered when there was novel violent stimulation, and reinstating the original stimulus lead to emotional response being above the level obtained immediately prior to novel stimulation.

The finding of primary interest in the present study is that the eyeblink startle, evoked by presenting white noise intermittently during violent stimulus, decreased in magnitude across trials while emotional response was habituating. Novel violent stimulation following habituation yielded an increase in the magnitude of startle as well as subjective reported emotional response, whilst the dishabituation of emotional response was evident when the original stimulus was reinstated accompanied by a level of startle above that prevailing immediately prior to novel stimulation.

In terms of the analysis of startle modulation offered by Lang et al., (1990, 1992) the trends noted above are to be expected if the violent stimulus was experienced as less aversive with repetition, novel stimulation restored aversiveness, and the original stimulus on reinstatement was more aversive than it had been immediately prior to novel stimulation. Whilst this pattern of responding was consistent across both genders, females generally responded with greater physiological and psychological intensity than the males. Whilst this is consistent with previous research, the possible effects of contextual features on habituation of emotional response remains illusive. The violent film stimulus employed in the current study, Once were Warriors, depicted a realistic portrayal of a woman being physically and verbally perpetrated by her husband. Previous research has highlighted that viewers subjective responses to filmed violence can vary depending upon the depiction presented. The inability of the current study to empirically consider the impact of contextual features represents a major limitation. It has been noted that the heterogenous nature of violent portrayals has been a neglected area of study. Furthermore, however, the exploration of
contextual features has been identified as a pressing priority for research in the new millennium. Previous studies have reported that qualitatively different presentations of violence do moderate subsequent aggression, desensitisation and fear; the process of emotional habituation has not yet been systematically examined.

The current study illustrates habituation to a realistic portrayal of filmed violence. The data collected in the current study will serve as a comparison to that collected in Study 3, which will examine the process of emotional response to a fantasised depiction of filmed violence. It will be interesting to see if the effects of gender on emotional response to fantasised violence are as pertinent as that to the realistic portrayal.
CHAPTER 8.

STUDY 3: IDENTIFICATION OF EMOTIONAL HABITUATION TO FILMED VIOLENCE: THE EFFECT OF GENRE

8.1 Introduction

Despite the research attention and methodological ingenuity invested in the analysis of violence and its effects, investigators in this field have relatively neglected the heterogeneous nature of violent portrayals (Brown & Cantor, 2000; Roberts, 2000; Walsh, 2000). Researchers have tended to examine viewers’ reactions to a very narrow range of violent programme materials, and have often treated violence as a unitary process, a single set of events or happenings with common antecedents or consequences. Yet the many different psychological and sociological definitions of violence and explanations for its occurrence indicate that the concept is highly complex, multidimensional and diversified (Brown & Cantor, 2000). It seems likely that a proper understanding of the nature of violence, whether as it occurs in real life or as it is shown on film, may be better achieved via a multidimensional analysis of its causes and characteristics.

The aim of the current thesis is to determine the relative influence of contextual features on an audience’s emotional response to filmed violence. Whilst the current thesis has focussed on filmed violence and habituation of emotional response, it has, partially, been successful in separating and distinguishing the nature of effects depending upon contextual features. An exploratory study was considered necessary to identify filmed violence that was considered theoretically, conceptually, socially and culturally relevant. Guided by the content analysis framework generated by Wilson et al., (1998) the
exploratory study classified violent depictions according to the degree of realism or fantasy. Subsequent to this Study two assessed individuals emotional response to a realistic depiction of filmed violence. Consistent with expectations and previous research Study two found that, with repeated exposure to filmed violence, both subjective and objective measures of emotional response demonstrated habituation. Whilst Study two adds to and further extends the scientific literature regarding the implications of filmed violence to include habituation of emotional response, the applicability and generalisation of the results are limited to a particular and specific portrayal of filmed violence. Study two focused on examining individuals emotional response to a realistic portrayal of filmed violence, the current study is concerned with examining emotional response to a depiction of filmed violence with a fantasy content. In doing so, the thesis has accounted for and allowed for a direct comparison of the effects of the contextual features of filmed violence on individuals subsequent emotional response.

The literature has began to recognise that there is a need to systematically investigate viewers’ responses to a broader and more representative range of violent stimuli (Wilson et al., 1998). This assertion is based on the knowledge that viewers may interpret one type of portrayal quite differently from another depending upon the contextual features presented. The current study aims to examine two specific contextual features of filmed violence, realism and fantasy, to influence an individual’s emotional response, specifically investigating the process of emotional habituation. The study uses the startle eyeblink response proposed by Vrana, Spence and Lange (1988) to objectively measure individuals’ emotional state in response to the contextual features of filmed violence. Although the focus of the current study is to examine the impact of contextual variations on an individual’s subsequent emotional response, personality factors and gender differences are also taken into account. In this study, contextual features
expected to influence emotional response are first discussed, followed by a review of prior research focussing on the mediating effects of individual differences.

### 8.2 The effect of genre on emotional response

Recent research has focused on the qualitative attributes of violent portrayals that might modify the extent of impact on viewers. The impact of media violence has received a great deal of scrutiny, examining the primary types of effects from viewing. An area of uncertainty surrounds the possibility that the effects from viewing violence are not uniform across all possible examples of violent depictions. It is essential to evaluate the contextual features of any portrayal in order to fully appreciate its likely impact on the audience. There is a growing amount of evidence, which indicates that types of violence are perceived differently (Berry, Gray & Donnerstein, 1999, Wilson et al., 1998). The literature has demonstrated that viewers tend to be more strongly affected by violent scenes they regard as realistic than by incidents they believe are fictional or otherwise unreal (Berkowitz, 1986). Study two represented an attempt to assess the extent to which individuals were emotionally affected by realistic violent scenes presented repeatedly.

The current study examines viewers’ emotional reactions to a fantasised depiction of filmed violence. Taken together, studies two and three represent an attempt to assess the emotional response to film violence with a consideration of film genre and contextual features. The obtainment of information specific to emotional response for the contextual features of fantasy and humour separately provides for the opportunity to compare and contrast the process of emotional response between film genres. Thus, study three aims to evaluate the effect of the two contextual features in order to gain an enhanced appreciation of the likely impact on the audience. Following analysis
examining the habituation of emotional response to a violent depiction with fantasy content the results obtained from the current study will be compared directly with those of Study 2. This analysis will be achieved through statistical means, which will compare the patterns of emotional response between the two film genres.

In the conceptualisation of violence and selection of film stimuli, the current thesis was guided by the National Television Violence Study 2 (NTVS2: Wilson et al., 1998). The NTVS2 identified nine contextual factors, which have the potential to influence audience reactions to violent portrayals. Following the establishment of these nine contextual factors Wilson et al., (1998) conducted an exhaustive review of the social science research aiming to predict and summarise the impact of these on three outcomes (learned aggression, fear, and desensitisation) of exposure to media violence. A summary of these relationships is presented in Table 19 (Outcomes of Media Violence - NTVS2)
Table 19  Predicted Impact of Contextual Factors on Three Outcomes of Exposure to Media Violence

<table>
<thead>
<tr>
<th>Contextual Feature</th>
<th>Learned aggression</th>
<th>Fear</th>
<th>Desentisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive Perpetrator</td>
<td>↑</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Attractive Target</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Justified Violence</td>
<td>↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unjustified Violence</td>
<td>↓</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Presence of Weapons</td>
<td>↑</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensive/Graphic Violence</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Realistic Violence</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Rewards</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>Punishments</td>
<td>↓</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Pain/Harm Cues</td>
<td>↓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humour</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
</tbody>
</table>

Note. Predicted effects are based on review of social science research on contextual features of violence. Blank spaces indicate that there is inadequate research to make a prediction.

↑ = likely to increase the outcome
↓ = likely to decrease the outcome

The work of Wilson et al., (1988) presented in Table 8 indicates that the literature has documented the effect of realistic violence is likely to both increase the outcome of fear and learnt aggression. It is assumed, however, that no controlled research examining the contextual feature of realism relevant to the potential outcome of desensitisation existed at the time of the review. Subsequent and more recent examinations have similarly been unable to locate studies investigating the effects of violence portrayed realistically on subsequent desensitisation, or more relevant to the current study, habituation of emotional response. The aim of the current study is to explore the emotional response of individuals to repeated presentation of a fantasised depiction of filmed violence.
Numerous studies indicate that realistic portrayals of violence can pose more risks for viewers than unrealistic ones. For example, earlier work conducted by Berkowitz and Alioto (1973) found that exposure to a war film led to more aggression (behavioural measurement) among adult males when it was described as a documentary than when it was labelled a Hollywood production. Subsequent studies identified that a film of a campus fistfight that was introduced as something that actually happened led to greater aggression among college-aged males than did the same fight when it was described as staged (Geen, 1975; Thomas & Tell, 1974).

The realism of a portrayal can also enhance viewers’ fear reactions to violence (Geen, 1975; Geen & Rakosky, 1973). Studies have demonstrated that adults are far more emotionally aroused by violent scenes that are perceived to have actually happened than if the same scenes are believed to be fictional. An examination by Gunter and Furnham (1983) indicated that violence presented in more authentic or realistic contexts appear to be more emotionally arousing, as indexed by subjective self-reports, than violence presented in a fictitious or fantasy context.

In the current study, the contextual feature of fantasy is explored. More specifically, the study is interested in examining the effects of fantasy habituation of an individual’s emotional response. Following the acquisition of this information regarding the process of emotional response after repeated exposure to a fantasised depiction of filmed violence the results will then be compared and contrasted with those obtained in study two, which examined emotional response to a realistic depiction of filmed violence. This will, subsequently allow for a comparison of viewers emotional reactions and processing of the two film genres.
8.3 Personality

The literature interested in investigating the impact of violence on society has recently began to highlight the need to systematically explore the effects of individual differences. Whilst earlier research has been conducted (e.g. Gunter and Furnham, 1983, Frost & Stauffer, 1987) providing insight regarding the mediating effects of personality on individual’s perceptions of and reactions to filmed violence, recent reviews continue to highlight the need for further research. The results of study two provided corroboration of earlier work, which identified neuroticism to be implicated in viewers’ perceptions of and emotional reactions to filmed violence. Emotionally sensitive individuals (high N scorers) reported greater anger, anxiety and less positive feelings whilst viewing the violent film stimuli than did less-sensitive individuals. Furthermore, extraversion was found to affect individuals self-reported levels of experienced anger, entertainment and curiosity whilst watching the violent film. These results are applicable and specific to individuals exposed to a realistic depiction of violence. Limited research to date has examined the mediating effect of personality on individuals’ emotional response to a fantasised depiction of filmed violence.

8.4 Anger and Aggressiveness

Whilst research investigating the differential effects of anger and aggressiveness has documented a correlational relationship between real-life aggression and subsequent behaviour, study two failed to identify any significant relationships between measures obtained on the STAXI-2 and individuals’ subsequent emotional response to a realistic depiction of filmed violence. It could be postulated that the insignificant relationship between state-trait anger and emotional response to a realistic depiction of violence is a function of the contextual feature. Alternatively, these differences may be attributable to methodological differences and research objectives. The current thesis is concerned
with examining an individual's immediate emotional response to a fantasised depiction of filmed violence, and to determine the influence of state-trait anger.

### 8.5 Gender

There appears to be clear differences in males and females' emotional processing and responses to violent film (Blanchard, Graczyk, and Blanchard, 1986; Kelley, 1985; Koukounas and McCabe, 2001). Study two provided further corroborating evidence of gender differences in the emotional response to filmed violence when it was identified that men generally displayed more curiosity and reported greater entertainment and positive feelings in response to the violent film. In contrast, women reacted in a more aversive way to the violence, reporting higher levels of disgust, anger, and anxiety. These gender effects on emotional response were observed through both subjective self-reports and the objective eyeblink startle response. The literature, however, recognises that certain contextual features of filmed violence can subsequently affect the viewers' perception of and reaction to the stimulus (Wilson et al., 1998). The current study will be assessing the effects of genre on subsequent emotional response. While the main focus is to tease out the different effects of filmed violence, the study is also interested in comparing the pattern of emotional response between genders. Study three is interested in determining whether the effects of gender will be replicated when examined in response to the contextual feature of realism.

### 8.6 Summary

In this study, the main aim is to explore the process of emotional response to a depiction of filmed violence with fantasy content as distinguished in exploratory Study 1. The process of assessing emotional response will be achieved through both subjective self-reports and the objective eyeblink startle response. Acknowledging previous research
efforts and the results of study 2, which have highlighted the role of personality and individual differences, study 3 aimed also to further investigate the role these dimensions may have in mediating individuals’ emotional response to a fantasised depiction of filmed violence. The final aim of study 3 was to then integrate the two studies, which assessed the emotional response to a realistic and fantasised depiction of filmed violence to determine the effect of these two contextual features on emotional response.

8.7 Research hypotheses

Hypotheses for the study were:

It is hypothesized that repeated exposure to violent film will result in a decline of the five emotional responses, disgust, positive feelings, entertained, anxiety, and anger, as measured by subjective self-report and the magnitude of the startle eyeblink startle response to a sudden burst of white noise presented concurrently with violent film stimuli.

That respondents will demonstrate gender differences in the process of habituation to violent film material. It is anticipated that females will initially react with more intense physiological and psychological reactions to the violent film than males. Furthermore it is expected, however, that the process of habituation will parallel for the genders. Specifically, it is anticipated that females will report a more aversive experience with greater feelings of disgust, anxiety and anger. Physiologically, it is expected that females will demonstrate an augmented startle response magnitude, both initially and across time, to the violent film relative to males.

That respondents will show a correlation between subjective emotional responses to violent stimuli and the magnitude of the eyeblink startle response to a sudden burst
of white noise presented concurrently with violent film stimuli. Specifically, it is expected that startle magnitude will decrease as respondents experience reduced anxiety, disgust and anger in response to the violent film.

That an assessment of personality and state-trait anger will have a mediating effect on individuals’ emotional response to the filmed violence.

It is hypothesised that the effects from viewing the two violent depictions will differ. It is expected that comparative examination of the emotional responses to the filmed violence, with consideration of the two contextual features will identify significant differences in the process of emotional response. More specifically, it is expected that the realistic portrayal will elicit a greater aversive reaction than the fantasised portrayal.

8.8 Method

8.8.1 Participants

A sample of thirty participants, 15 men (mean age 21.27 years, SD 3.27) and 15 women (mean age 22.87 years, SD 3.80) were recruited through advertisements placed on the noticeboards of a large metropolitan university and in student newspaper publications. All subjects provided informed consent following description of the recording requirements and inspection of the laboratory. Although the contract allowed an individual to terminate involvement in the experiment at any time, none did so.

8.8.2 Materials

A battery of questionnaires were administered to participants and completed individually which elicited the following information:
1. *State-trait anger scale:* The experience, expression, and control of anger for each individual was assessed using the State-Trait Anger Expression Inventory-2 (STAXI-2) (Spielberger, 2001). The recently revised 57-item STAXI-2 consists of six scales, five subscales and an Anger Expression Index, which provides an overall measure of the expression and control of anger. The STAXI-2 is a self-report measure containing questions regarding both the individuals state and trait levels of anger and actions associated with this emotion. The participants were presented with questions such as: “I feel irritated”, “I have a fiery temper” and “I strike out at whatever infuriates me”. Participants were then required to answer these questions as “Not at all”, “Somewhat”, “Moderately so”, or “Very Much so”. The STAXI-2 has been shown to be internally consistent (.83) and has demonstrated concurrent, convergent and divergent validity (Spielberger et al., 1985). This scale will be employed to assess for the possible mediating effects of anger on individuals’ emotional reactivity to filmed violence.

2. *Eysenck Personality Questionnaire-Revised (EPQ-R):* The well validated EPQ-R is widely used as a research tool for assessing individual differences. The EPQ-R has proven to be a useful self-report measure completed without difficulty when time is limited (Gunter & Furnham, 1983). The 48-item self-rating EPQ-R provides a convenient measure of the major fundamental defining aspects of personality, Neuroticism (N), Extraversion (E) and Psychoticism (P). Each of the 48 items is scored True or False according to the validity of each statement for the respondent. Respondents are asked to circle the response, which for the majority reflects their normal functioning. Once completed the EPQ-R yields a score for each of the three personality dimensions and a Lie scale, which attempts to measure the tendency to ‘fake good’. Test-retest values are reported to be .93 for P, .92 for N and .76 for L (Eysenck & Eysenck, 1991). The EPQ-R has been widely validated in the use of assessing personality (Corulla, 1987; Johnson, Kim & Danko, 1989; Torrubia & Muntaner, 1987;
Williams, 1989). In addition, the EPQ-R has been used frequently for the assessment of individual differences into the effects of filmed violence (Frost & Stauffer, 1987; Gunter, 1983; Kiewitz & Weaver, 2001).

The following equipment was subsequently employed to assess each individuals’ emotional and physiological responses to the violent film stimuli:

**Film segments:** The two film segments, each in colour and presented with sound, were those identified in the earlier exploratory study. The film excerpts were taken from commercially available video film and represented material judged by the Australian Office of Film and Literature Classification to be violent in content (utilising “Restricted” or “R” certificate for violence) and identified by the exploratory study as both violent and representing a fantasised depiction. The segment used as the habituation stimulus *Terminator 2* (on trials 1 – 10 and 13 - 14) depicted a scene of both verbal and physical abuse perpetrated by a male onto other males. The violence was perpetrated against the targets using a gun. The novel stimulus *Fight Club* (presented on trials 11 – 12) showed two men enacting violence upon each other using the natural means of punching with fists. Each film segment lasted 120 seconds, and there was an interstimulus interval of 60 seconds. Respondents viewed the materials on a comfortable recliner chair. All contact between respondents and the experimenter were through an intercom system.

**Computer program equipment:** The eyeblink component of the startle response was measured by recording electromyographic (EMG) activity from the orbicularis oculi muscle directly above and below the left eye. A ground electrode was placed on the left ear. The raw EMG signal was amplified and integrated using MacLab biomedical equipment. The magnitude of the startle eyeblink was indexed by the difference in EMG response level immediately prior to and following the white noise burst (startle
stimulus). The eyeblink startle response, which was used to assess emotional processing, was evoked by a 50 millisecond burst of 95 dB white noise with instantaneous rise time presented to the subjects through stereophonic headphones.

Respondents were informed at the beginning of the test session that they would occasionally hear an intense, but brief burst of white noise through the headphones. The respondents were instructed to disregard this noise and to continue attending to the film. To reduce the likelihood of habituation within the startle response system itself, white noise was presented on only 5 occasions across the 14 trials in the session. Onset of this stimulus was either early (20 sec), middle (50 sec), or late (80 sec) in the film sequence for each of the two types of stimuli, which provided an unpredictability regarding its onset. For all subjects the 5 probes were scheduled on trials 1 (onset 20 sec), 4 (onset 50 sec), 8 (onset 80 sec), 11 (onset 20 sec) and 13 (onset 80 sec).

Subjective assessment to violent film scale: At the end of each sequence, participants were asked to verbally rate the material on a scale from 1 ‘not at all’ to 5 ‘extremely’ with respect to the following eight variables: subjective arousal, positive feelings, anxiety, disgust, entertainment, boredom, anger and curiosity. Participants were also asked to identify what it was about the film material, which produced their particular responses.

8.8.3 Procedure

Ethics approval was obtained from Deakin University to proceed with the study (Appendix B). Participants were recruited from the general community through personal contacts, notices posted around the Melbourne Campus of Deakin University, and through announcements made at the beginning of lectures. Potential participants
were invited to participate in a study “investigating the habituation of individuals emotional and physiological responses to filmed violence”. Prior to obtaining informed consent, participants were informed that the study would assess their reactions to violent stimuli and they would, during the procedure, be required to be fitted with two electrodes around one of their eyes. Participants were provided with a plain language statement (Appendix C), which they were asked to read before signing the consent form (Appendix D). Participants then received further verbal reassurance that their participation was completely anonymous and that they were free to withdraw from the study at any time. At this point contact numbers for counseling services were provided in the event that any of the participants were distressed by their participation. Following obtainment of informed consent, participants were provided with the battery of questionnaires that they were instructed to complete. These included (in order): The EPQ-R and STAXI-2. To ensure anonymity and confidentiality the completed questionnaires were then handed to the examiner who then coded and stored separately from the consent form.

After administration and completion of the questionnaires, participants were seated in an armchair in the practical room directly facing the television. The participant was then requested to read a set of standardized instructions (Appendix E) describing the procedure. During this time the experimenter was available for questions and clarification of any uncertainties. The experimenter then attached the electrodes to and invited the participant to wear the headphones. At this point the experimenter proceeds to the lab room to commence measurement of physiological responses. After two minutes had elapsed, the video containing the film-segments commenced. Participants were required to watch the same segment ten times, followed by an eleventh novel stimuli and a twelfth original stimulus. Finally the original stimulus was presented on trials thirteen and fourteen. During each segments both subjective reports of emotional arousal and a physiological response was obtained. After the viewing of all twelve
segments the video tape was ceased, the electrodes and headphones were removed from the participant. Following this the participant was informed that the experiment had ended. The experimenter then debriefed the participant as to the nature and purpose of the study, and asked whether they had any questions relating to the study. Finally the experimenter acknowledged much gratitude for the time invested in participation.

8.8.4 Data Reduction

The current study was interested in examining the habituation of emotional response to filmed violence over repeated exposure. To assess the effect of repeated exposure to filmed violence, the independent variable of trial, with five levels was employed as the within subjects factor. A preliminary factor analysis was conducted to determine factor loadings for the subjective variables. No significant groupings into positive versus negative variable was detected. In the analysis gender was employed as the between subjects independent variable with two levels (male and female) to allow for the concurrent assessment of gender effects. The dependent variable under examination was emotional response. Emotional response was measured subjectively and defined as anxiety, disgust, positive, entertained, bored and anger. In addition, an objective measure of emotion was recorded through measurement of the eyeblink startle response.

The session yielded 14 measures of subjective emotional response for each of the five variables and 5 recordings of startle response level for each subject. In statistical analysis the extent to which habituation had occurred was assessed by analysing measures on trials 1 – 10 in blocks of three trials (trials 1-3, 4-7, and 8 – 10), using mean response level per trial as the dependent variables. Novelty effects were studied by comparing the mean response level per trial across trials 11 – 12 with the mean response
level per trial across trials 8 – 10. Whether dishabituation occurred was established by comparing mean response level per trial across trials 13 – 14 with mean response level per trial across trials 16 – 18.

Due to the nature of the study planned comparisons were executed to identify specifically the effect of habituation, novelty and dishabituation (See Appendix E – Syntax file). Separate post-hoc analysis using planned comparisons were undertaken in order to determine whether response level per trial varied significantly over trials 1 – 10 (the test for habituation), between trials 9 – 10 and trials 11 – 12 (the test for novelty), and between trials 9 – 10 and trials 13 – 14 (the test for dishabituation)

The dependent variables in each analysis were disgust, positive feelings, entertainment, anxiety, anger and magnitude of the startle response. On occasions where a significant time by gender interaction was identified, planned comparison was conducted separately by each gender. If, however, there was no significant interaction between genders evidenced through the ANOVA the planned comparison was carried out for the sample, thus, reducing redundant information.

Prior to analysis, data checks were conducted using SPSS for Windows program (version 10.0) on a PC (Norusis, 1993, 2001). The variables were examined for accuracy of data entry, missing values, and to check that they met the assumptions of multivariate analyses. A small number of missing values were located within the STAXI-2 and EPQ-R. Upon looking at the data set, it appeared that these missing values were randomly scattered. Since a small amount of missing data does not usually affect results, missing values were replaced with the individual’s mean score for remaining items on those scales to allow the cases to remain in the analysis (Tabachnick
Normality of the groups was assessed using both statistical and graphical methods to determine skewness and kurtosis.

A series of seven mixed/split plot repeated measure ANOVAs were conducted to examine emotional response over time and across gender. To reduce the risk of making a Type I error or falsely rejecting the Ho, Bonferroni adjustments were made to alpha (α/number of contrasts). The following assumptions were checked before the analysis were conducted:

Univariate and multivariate normality: the data for each dependent variable was assessed for normality using a combination of histograms and stem and leaf displays. The normality was also confirmed by the Kolmogorov-Smirnov statistic, deviation from normality was assessed at p < .05 level. Multivariate outliers were assessed using Mahalanobis distance, where none of the values exceeded the chi-squared statistic.

Homogeneity of variance-covariance matrices: Homogeneity of variance was confirmed at both the univariate level using Levene’s test of equality (p > .001), and at the multivariate level using Box’s M test (p > .001).

Multicollinearity and Singularity: The dependent variables were not highly/significantly correlated with one another.

Mauchly’s Test of Sphericity was also observed to ensure that the covariances among treatments be equivalent. When violated adjustments to the F statistic need to be made, in this case Greenhouse-Geisser epsilon (GG) was used. In all analyses sphericity was violated and the GG was less than .75, hence GG correction was used in all data analysis and interpretation.
These tests of assumptions will only be reported if violated, that is, the reader can assume that the assumptions underpinning analysis were met unless stated otherwise.

8.9 Results

The analysis presented here aims to examine the effect of repeated exposure to a fantasised depiction of violent film on individual’s emotional response. Emotional response was recorded both subjectively, through self-reported levels of disgust, positive feelings, entertained, anxiety and anger, and objectively employing the eyeblink startle response. The analysis will proceed accordingly, presenting an examination of emotional response over time and between genders for each of the dependent variables. Subsequent to this, the analysis will focus on the results of post-hoc analysis, using planned comparisons. Planned comparisons were undertaken to identify the specific effects of habituation, novelty and dishabituation.

8.9.1 An assessment of the effect of repeated exposure to a fantasised depiction of violent film on emotional response, by gender.

8.9.1.1 Disgust

Figure 10 illustrates the mean levels of subjectively experienced disgust over time for each gender whilst viewing the violent stimuli.
The results presented in Figure 10 indicate that, on the variable of disgust females reported experiencing higher levels of disgust to the violent stimulus than males. Females ($X = 1.78, SD = .07$) on average reported higher levels of disgust than males ($X = 1.27, SD = .06$) and this occurred across all trial blocks. Across the first trial block, the average females self-reported level of disgust was calculated to be 1.9 ($SD = .51$). In comparison males reported, on average, a disgust level of 1.3 ($SD = .43$). It can be seen, therefore, that females reacted with more intense psychological reactions to the violent film than did males. This pattern of heightened response by females was evidenced over
the subsequent trial blocks. This finding was supported by a significant main effect for gender, $F(1, 28) = 28.76, p < .001, \eta^2 = .52$.

Although females consistently reported higher levels of disgust than did males, no significant differences were identified in the patterns of response between genders over the trial blocks. That is, the interaction of gender and time was not significant, $F(4, 108) = .252, p = .908, \eta^2 = .009$, therefore suggesting that the patterns of emotional processing and response were the parallel for both genders. There was, however, a significant main effect for time, $F(4, 108) = 9.48, p < .001, \eta^2 = .26$. This effect is illustrated in figure 10 where there is a steady decrease in self-reported disgust over trial blocks 1 – 3, a recovery with the novel presented stimuli during trial block 4, and with reinstatement of the original stimulus on trial 5, disgust levels were higher than they had been prior to novel stimulation.

Planned comparisons revealed that response levels per trial varied significantly across the trial blocks demonstrating habituation, novelty and dishabituation of self-reported disgust. See Table 21.

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 34.05, p &lt; .001, \eta^2 = .55$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 19.46, p &lt; .001, \eta^2 = .41$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 34.80, p &lt; .001, \eta^2 = .55$</td>
</tr>
</tbody>
</table>

The results of the planned comparisons analyses (See table 21) reveals that respondents reported significant and reduced levels of disgust across trial blocks 1 – 3 demonstrating habituation. A comparison of disgust levels at trial block 3 with the introduction of the novel stimulus at trial block 4 identified significant differences in response. Novel
stimulation was accompanied by a recovery in response. Reinstatement of the original stimuli at trial block 5 led to greater levels of self-reported disgust compared to that reported prior to novel stimuli at trial block 3.

8.9.1.2 Positive

The subjective recordings of individuals positive feelings over trial blocks whilst viewing violent stimuli is presented in figure 11.

![Graph](image)

**Figure 11.** Mean levels of reported positive feelings in response to filmed violence across trial blocks for males and females.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>.16</td>
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<tr>
<td>4</td>
<td>.12</td>
<td></td>
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<tr>
<td>5</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>.11</td>
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<td>3</td>
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<td>4</td>
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<td>5</td>
<td>.15</td>
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</tbody>
</table>

Figure 11 illustrates that minimal changes were reported in positive feelings across trial blocks one (X = 3.5), two (X = 3.3), and three (X = 2.9). An increase in self-reported
positive feelings at trial block 4 (X = 3.1) and again at trial block 5 (X = 3.2) resulted in a significant main effect of time, $F (4, 112) = 6.60, p < .001, \eta^2 = .19$. Figure XX indicates that males experienced greater positive feelings than females. Males (X = 3.4, SD = .08) on average reported more positive feelings than females (X = 3.1, SD = .08) and this occurred across all trial blocks. This observation was supported by a significant main effect for gender, $F (1, 28) = 4.35, p < .05, \eta^2 = .14$. Although males reported more positive experiences whilst viewing the violent film than females, the pattern of emotional response over time was the same between genders. That is, the interaction of gender and time did not reach statistical significance, $F (4, 112) = .252, p = .908, \eta^2 = .009$.

Table 23. Planned comparison analyses of self-reported positive feelings over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F (1, 28) = 34.05, p &lt; .001, \eta^2 = .55$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F (1, 28) = 19.46, p &lt; .001, \eta^2 = .41$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F (1, 28) = 34.80, p &lt; .001, \eta^2 = .55$</td>
</tr>
</tbody>
</table>

The results of the planned comparison analysis (see table 23) reveal that there was a significant, steady decline in self-reported positive feelings over trial blocks one, two and three, demonstrating habituation of response. No significant effect of novelty was identified, however, dishabituation was evident when the comparison between trial blocks three and five was identified as significant. This indicates that reinstatement of the original stimulus led to self-reported feelings being above the level obtained immediately prior to novel stimulation.
8.9.1.3 Entertained

Mauchly’s Test of Sphericity was violated at $p < .001$ with a GG of .49. Subsequently, the GG correction was used in the analysis and interpretation of the anger response over time to the violent film stimuli.

The graph presented in figure 12 provides visually the descriptive data specific to male and females self-reported levels of entertainment over time whilst viewing the violent stimuli.

![Graph showing entertainment response to violent film stimuli by gender](image)

*Figure 12.* Mean entertainment response filmed violence across trial blocks for males and females.

| Table 24. Standard error statistics to accompany figure 12 |
|-----------|----------|-------------|
| Gender   | Trial | Standard Error |
| Males    |       |              |
| 1        | .09   |              |
| 2        | .08   |              |
| 3        | .08   |              |
| 4        | .07   |              |
| 5        | .09   |              |
| Females  |       |              |
| 1        | .08   |              |
| 2        | .08   |              |
| 3        | .07   |              |
| 4        | .07   |              |
| 5        | .08   |              |
Figure 12 illustrates variability in self-reported levels of entertainment over time. Across trial blocks one, two and three a steady decline in entertainment levels were reported for both genders. Novel stimulation leads to an increase in entertainment levels at trial block four, and a decrease in entertainment levels was reported at trial block 5. This effect of time was recognised as being statistically significant, $F(2, 53) = 55.40, p < .001, \eta^2 = .67$. A main effect of gender was also revealed, $F(1, 28) = 11.37, p < .001, \eta^2 = .30$ when it was identified that males ($X = 2.4, SD = .09$), on average reported higher levels of entertainment than did females ($X = 1.9, SD = .08$). No significant interaction of time and gender was revealed, $F(2, 53) = .878, p < .001, \eta^2 = .03$ indicating that the pattern of emotional response for males and females level of entertainment whilst viewing the violent film did not differ over trial blocks.

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 81.64, p &lt; .001, \eta^2 = .74$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 147.07, p &lt; .001, \eta^2 = .84$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 124.33, p &lt; .001, \eta^2 = .82$</td>
</tr>
</tbody>
</table>

The results of the post-hoc analysis presented in Table 25 demonstrate the effect of habituation, novelty and dishabituation. These data indicate that with repeated exposure over trial blocks one, two, and three respondents were less entertained by the violent stimuli presented. Novel stimulation was accompanied by a statistically significant increase in self-reported levels of entertainment. Reinstatement of the original stimuli led to greater levels of self-reported entertainment compared to that reported prior to novel stimulation.
8.9.1.3 Anxiety

Figure 13 provides visually, information, which suggests that on average, females reported higher levels of anxiety whilst viewing the violent film than males, and this occurred across all trial blocks.

![Graph showing mean anxiety response filmed violence across trial blocks for males and females.](image)

Figure 13. Mean anxiety response filmed violence across trial blocks for males and females.

Table 26. Standard error statistics to accompany figure 13

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.22</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.16</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.18</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.18</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.18</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.17</td>
</tr>
</tbody>
</table>

Statistical analyses confirmed a main effect of gender, $F(1, 28) = 16.43, p < .001, \eta^2 = .37$. It was noted that females ($X = 1.61, SD = .07$), on average, across all trial blocks reported higher levels of anxiety than their male counterparts ($X = 1.23, SD = .06$). Despite the observation that females reported higher levels of anxiety, no observed differences in the pattern of emotional response between genders across time was
identified. The interaction of time and gender failed to reach statistical significance, \( F(4, 112) = .947, p = .439, \eta^2 = .03 \). There was, however, a significant main effect for time, \( F(4, 112) = 9.62, p < .001, \eta^2 = .26 \), indicating that self-reported levels of anxiety varied for both groups across the five trial blocks. Planned comparison analyses examined this effect and the results are presented in table 27.

Table 27. Planned comparison analyses of self-reported anxiety over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>( F(1, 28) = 50.40, p &lt; .001, \eta^2 = .64 )</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>( F(1, 28) = 2.10, p = .159, \eta^2 = .07 )</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>( F(1, 28) = 21.11, p &lt; .001, \eta^2 = .43 )</td>
</tr>
</tbody>
</table>

A general reduction in self-reported anxiety levels whilst viewing the violent film was recorded over the first three trial blocks demonstrating habituation of emotional response. No statistically significant effect of novelty was identified. A comparison of the mean level of anxiety response prior to novel stimulation to the mean level of anxiety response following novel stimulation identified a significant dishabituation effect for anxiety.

8.9.1.4 Anger

Figure 14 presents the average profile of self-reported experiences of anger for males and females whilst viewing the violent film stimuli across the five trial blocks.
Figure 14 illustrates that self-reported levels of anger varied significantly over the five trial blocks, this was confirmed by a main effect of time, $F(1, 38) = 23.80, p < .001, \eta^2 = .47$. Reports of experienced anger diminished over trial blocks one to three, increased slightly with novel stimulation during trial block four and five. No significant difference in this pattern of response was observed between genders, $F(1, 28) = .941, p = .341, \eta^2 = .03$. This data indicates that the process of emotional response, as measured by self-reported experiences of anger, was consistent between genders. Furthermore, no significant interaction was revealed between trial block and gender, $F(1, 38) = .59, p = .502, \eta^2 = .02$. 

Figure 14. Mean anger response filmed violence across trial blocks for males and females.

Table 28. Standard error statistics to accompany figure 14

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.16</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.13</td>
</tr>
</tbody>
</table>
Table 29 presents the results of planned comparison analysis, which examined specifically whether response level per trial varied significantly to demonstrate habituation of emotional response.

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>(F(1, 28) = 66.20, p &lt; .001, \eta^2 = .71)</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>(F(1, 28) = .29, p = .369, \eta^2 = .03)</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>(F(1, 28) = 58.73, p &lt; .001, \eta^2 = .69)</td>
</tr>
</tbody>
</table>

The planned comparison analysis examining the emotional response of anger identified both habituation and dishabituation. It was identified that, with repeated exposure respondents’ self-reported levels of experienced anger decreased significantly over the first three trial blocks. Dishabituation was evidenced by higher self-reported levels of anger post novel stimulation than just prior. No significant effect of novelty was identified.

**8.9.1.6 Eyeblink Startle Response**

Due to a violation in Mauchly’s Test of Sphericity \(p < .001, \text{GG} = .54\) the GG correction was employed in analyses and interpretation.

Figure 15 presents the average profile of eyeblink startle response for males and females whilst viewing violent film stimuli across the five trial blocks.
Figure 15. Mean startle eyeblink response recorded for males and females whilst watching filmed violence across trial blocks.

Table 30. Standard error statistics to accompany figure 15

<table>
<thead>
<tr>
<th>Gender</th>
<th>Trial</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>1</td>
<td>.11</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.11</td>
</tr>
<tr>
<td>Females</td>
<td>1</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.11</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.08</td>
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<tr>
<td></td>
<td>4</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>.09</td>
</tr>
</tbody>
</table>

Figure 15 illustrates that the eyeblink startle response changed significantly over the five trial blocks. This was confirmed by a main effect of time, $F (1, 28) = 30.75, p < .001, \eta^2 = .53$. Eyeblink startle response decreased in magnitude across trial blocks one to three, increased at trial block four, and was lowered during the fifth trial block. No significant difference in this pattern of response was observed between genders, $F (1, 28) = 6.96, p = .15, \eta^2 = .45$. This data indicates that the process of emotional response as measured by the eyeblink startle response was consistent between genders. Furthermore no significant interaction was revealed between trial and gender, $F (1, 28) = .643, p .188, \eta^2$
= .02. The results of the planned comparison analyses examining the significant main effect of time is presented in Table 31.

Table 31. Planned comparison analyses of startle eyeblink response over time

<table>
<thead>
<tr>
<th>Trial block</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Across 1 – 3 (habituation)</td>
<td>$F(1, 28) = 26.962, p &lt; .001, \eta^2 = .45$</td>
</tr>
<tr>
<td>Between 3 – 4 (novelty)</td>
<td>$F(1, 28) = 56.261, p = &lt; .001, \eta^2 = .68$</td>
</tr>
<tr>
<td>Between 3 – 5 (dishabituation)</td>
<td>$F(1, 28) = 44.45, p &lt; .001, \eta^2 = .62$</td>
</tr>
</tbody>
</table>

The planned comparison analysis examining the objective eyeblink startle response identified the effect of habituation, novelty and dishabituation (See Table 31). The eyeblink startle response was observed to significantly decrease over the first three trial blocks. The effect of novelty was demonstrated by recovery of the eyeblink startle response upon presentation of the novel violent stimuli. Dishabituation was evidenced by an increase in magnitude of the eyeblink response post novel stimulation compared to that obtained just prior.

8.9.1.6 Summary

The current study examined individual’s subjective and objective emotional reactions to a repeated presentation of a fantasised depiction of filmed violence. Generally, a decline in emotional response was observed and associated with repeated exposure, thus demonstrating habituation of response. The results also identified a significant effect of dishabituation. Following novel stimulation and reinstatement of the original stimulus, a recovery in emotional response was observed.
8.9.2 Correlational analyses examining the mediating effects of individual differences

Correlational analyses were employed to investigate the possible mediating effects of personality and individual differences on emotional response to filmed violence.

8.9.2.1 STAXI-2

Results of the correlational analysis implicate both an individuals’ level of state and trait anger in emotional response to filmed violence. A higher score on the state-anger index was associated with higher levels of absorption ($r = .650, p < .001$), entertainment ($r = .643, p < .001$) and curiosity ($r = .694, p < .001$). This suggests that individuals who were experiencing anger at the time of participation were more absorbed, entertained and curious by the violent film stimuli. An individual’s level of trait-anger was found to be associated with higher levels of self-reported experiences of anger whilst viewing the violent film. It was identified that a higher score on the trait-anger index was associated with higher levels of anger ($r = .830, p < .001$) compared to those who scored lower. Therefore, individuals with higher trait-anger perceived and responded to the filmed violence with more anger than those scoring lower on the trait-anger index.

8.9.2.2 EPQ-R

Neuroticism: A higher score on N was found to be correlated with greater feelings of anxiety ($r = .650, p < .001$), disgust ($r = .809, p < .001$) and anger ($r = .509, p < .001$) than those who scored lower whilst viewing the violent film stimuli. In addition, individuals scoring higher on N reported less positive feelings whilst watching the violent stimuli than did low N scorers ($r = .660, p < .001$).
Extraversion: A correlational relationship was identified between individuals’ extraversion score and self-reported ratings of anger ($r = .435$, $p < .05$), entertainment ($r = .578$, $p < .001$) and curiosity ($r = .466$, $p < .001$).

Psychoticism: No significant correlational relationships ($p > .05$) between psychoticism and emotional response to the filmed violence were evidenced.

8.9.3 Comparative analyses between the contextual features of fantasy and humour on individual’s emotional response to filmed violence.

The current thesis has conducted two separate studies, which have analysed individual’s emotional response to both a realistic and fantasised depiction of filmed violence separately. This section aims to integrate the findings of the two earlier studies to examine the differential effects of the two contextual features on an individual’s emotional response to the violent stimuli. The analyses have identified that repeated exposure to both realistic and fantasised depictions results, initially in a gradual decline in both subjective and objective emotional response across the first three trial blocks, which is demonstrative of habituation. Generally, novel stimulation resulted in a recovery of emotional response, and reinstatement of the original stimulus led to emotional response being above the level obtained immediately prior to novel stimulation demonstrative of dishabituation. It remains to be seen whether there are significant differences in the initial reaction to, and process of emotional response to filmed violence depending upon the contextual feature presented. Subsequently, the current section is concerned with examining the effects of fantasy and realism on individual’s subsequent emotional response to filmed violence over time.
8.9.3.1 Disgust

Due to a violation of Mauchly’s test of Sphericity (p<.001, GG = .59) the GG correction was used to analyse and interpret the data comparing the emotional response between film genres.

The graph presented in figure 16 provides visually the average levels of self-reported disgust levels over time allowing for a comparison between the two film genres.

![Figure 16](image)

*Figure 16. Mean disgust levels reported for the two film genres across trial blocks.*

The results indicate that, on the variable of disgust, the realistic depiction of filmed violence consistently and significantly elicited higher levels than did the fantasised depiction. On average, the realistic portrayal (X = 3.24, SD = .24) was rated as more disgusting than the fantasised portrayal (X = 1.64, SD = .14) and this occurred across all trial blocks. This pattern of finding was supported by a significant main effect of film genre, F (1, 58) = 66.87, p < .001, $\eta^2 = .54$. 
A significant interaction between time and film genre identified that the pattern of response over time differed between film genres, $F(2, 103) = 4.020, p < .05, \eta^2 = .065$. Post hoc analyses revealed that self-reported levels of disgust across trial block one differed significantly between film genres (STATS).

8.9.3.2 Positive

Figure 17 presents self-reported positive feelings over time in response to the realistic and fantasised depictions of filmed violence.

![Figure 17. Mean level of positive feelings experienced whilst viewing the two film genres across trial blocks](image)

Figure 17 illustrates that comparatively, individuals experienced more positive feelings whilst viewing the fantasised depiction than the realistic portrayal and this was maintained across all trial blocks. Statistical analyses identified a main effect of film genre, $F(1, 58) = 530.02, p < .001, \eta^2 = .90$. On average respondents reported very little experience of positive feelings to the realistic portrayal ($X = 1.11, SD = .06$) compared to the fantasised depiction ($X = 3.30, SD = .05$). In addition, the analyses revealed
minimal variation in self-reports of positive feelings for both film genres, realistic ($X = 1.07 – 1.20$) and fantasy ($X = 2.94 – 3.53$). The analysis also revealed a significant time by film interaction, $F (3, 174) = 5.396, p < .001$, $\eta^2 = .09$ indicating that the pattern of response over time varied between the two film genres.

8.9.3.3 Entertainment

Due to a violation of Mauchly’s test of Sphericity ($p < .001$, $GG = .68$) the GG correction as used to analyse and interpret the data comparing the emotional response between film genres.

The subjective level of entertainment whilst viewing violence was examined over time. The average means for the trial blocks are displayed for the two film genres in Figure 18.

![Figure 18](image)

*Figure 18.* Mean level of entertainment reported whilst viewing the two film genres across trial blocks

Self-reported levels of entertainment were found to be similar across trial blocks, independent of film genre viewed. On average, respondents reported minimally lower
levels of entertainment in response to the realistic film (X = 1.7, SD = .1) than the fantasised depiction (X = 1.9, SD = .15). This suggests that the two films did not differ in entertainment value provided. This was confirmed statistically by a non-significant main effect of film genre, F (1, 58) = 3.042, p = .09, η² = .05. Despite this, however, a significant time by film genre was revealed, F (3, 174) = 10.916, p < .001, η² = .16 indicating variation in self-reported entertainment over trial blocks between film genres. Figure 18 illustrates a steadier decline in emotional response across trial blocks one to three for the fantasised depiction than the realistic portrayal.

8.9.3.4 Anxiety

Due to a violation of Mauchly’s test of Sphericity (p < .001, GG = .61) the GG correction as used to analyse and interpret the data comparing the emotional response between film genres.

Figure 19 presents separately the average profile of self-reported experienced anxiety across the trial blocks for the two different film genres.
Figure 19 illustrates that the realistic depiction of violence generated greater levels of anxiety in respondents, and this occurred across all trial blocks. The impression that the realistic portrayal was more anxiety provoking than the fantasised depiction was confirmed by a statistically significant main effect of film genre, $F(1, 58) = 9.067, p < .05, \eta^2 = .14$. Indicating that on the variable of anxiety, the intensity of the experienced emotion was significantly different between the two film stimuli. In addition, the process of emotional response over time varied between film genres, $F(3, 174) = 3.69, p < .05, \eta^2 = .06$. Figure 19 and statistical data illustrates that for the realistic portrayal of violence the self reported levels of experienced anxiety was almost identical for trial blocks one ($X = 2.583, SD = .171$) and four ($X = 2.583, SD = .55$). In comparison, self-reported levels of anxiety in response to the fantasised depiction indicate a slight decrease between trial blocks one ($X = 1.917, SD = .171$) and four ($X = 1.750, SD = .155$).
8.9.3.5 Anger

Mauchly’s test of Sphericity was violated at $p < .001$ with a $GG$ of $.597$. The $GG$ correction was used in analysis, interpretation and comparison of the anger response over time between the two violent film stimuli.

Figure 20 provides visually information, which indicates that on average, the realistic depiction of violence produced higher levels of anger compared to the fantasised depiction.

Statistical analysis confirmed a main effect of film genre, $F(1, 58) = 9.112$, $p < .05$, $\eta^2 = .14$. It was noted that the fantasised depiction ($\geq 1.96$, $SD = .15$), on average, across all trial blocks frequently elicited lower levels of experienced anger than the realistic depiction ($X = 2.70$, $SD = .17$). Despite the observation that the realistic portrayal generated higher levels of experienced anger there was no observed difference in the pattern of response across time. The interaction of time and film genre failed to reach
statistical significance $F (3, 103) = .298, p = .719, \eta^2 = .005$. The data indicate that whilst the pattern of emotional response was the same between the two film genres, the intensity of the anger response varied significantly.

8.9.3.6 Eyeblink Startle Response

Figure 21 displays the average recordings of the objective eyeblink startle response over time for the two film genres.

Figure 21 illustrates that the realistic film depiction initially produced a greater startle amplitude than the fantasy content stimuli. The was confirmed by statistical analysis which revealed a main effect of film genre $F (1,58) = 50.76, p < .001, \eta^2 = .64$. The analysis also revealed a significant time by film interaction, $F (3, 174) = 5.396, p < .001, \eta^2 = .09$ indicating that the pattern of response over time varied between the two film genres.
8.10 Discussion

The discussion in this section is limited to a summary of findings specific to study three. The results in relation to past research will be discussed in the overall discussion at the end of the thesis. The current study assessed the effect of repeated exposure to a fantasised depiction of filmed violence on subsequent emotional response. It was found that repeated exposure results in habituation of emotional response. Participants demonstrated significant decline in self-reported emotional response to the violent film stimuli over repeated presentation. The eyeblink startle response, which served as the physiological measure of emotional response to the film, was also observed to gradually decline in magnitude following repeated exposure. Initial recordings were higher, which indicated that respondents experienced a negative emotional response to the violent film. Habituation of the eyeblink startle response was demonstrated by a decline in startle magnitude, which was found to correlate with the subjective self-reports of emotional process to the violent stimulus. Consistent with prior research and the findings of study two gender and individual differences were implicated in individual’s perceptions and emotional reactions to the presented violence. The five experimental hypotheses will now be addressed individually.

8.10.1 Repeated exposure to violent film results in habituation of emotional response.

Respondents demonstrated a gradual decline in both the subjective and objective recordings of emotional response to filmed violence over time. Repeated exposure to the fantasised depiction lead to habituation on each of the five subjective emotional variables, disgust, positive feelings, entertainment, anxiety, and anger, as demonstrated by a decline in response over the first three trial blocks. The habituation of the objective
measure of emotional response was evident through an observed reduction in the magnitude of the eyeblink startle response. Both subjective and objective emotional response was observed to recover when there was novel violent stimulation, and reinstatement of the original stimulus led to emotional response recorded above the level obtained immediately prior to novel stimulation.

8.10.2 The effects of gender on emotional response to filmed violence.

The current study provides support for the hypothesis that there are differences in the manner in which men and women respond to violent film. This observation was applicable for both subjective and objective measures of emotional response. The observable gender difference in emotional response was most notable when considering initial reactions to the violent film. Women react initially with more intense psychological and physiological reactions to the violent stimulus than males. The other significant distinguishing feature between the emotional responses of the genders is that women react in a more aversive way than males, reporting higher levels of disgust and anxiety. Despite these differences, however, the pattern of emotional response and habituation for males and females over time did not differ significantly.

8.10.3 The mediating effects of individual differences.

In accordance with the fourth hypothesis, the current study identified correlational relationships between trait variables and subsequent subjective emotional responses to the violent film. It was found that an individual’s level of state and trait anger affected subsequent emotional response. Specifically, individuals characteristically more angry (high trait anger) reported greater anger in response to the violent film. This finding is consistent with suggestions which claim that individuals who score high on measures of trait aggressiveness and anger experience activation of aggressive cognitions whilst
watching a violent film (Bushman, 1995; Bushman & Geen, 1990; Zillmann & Weaver, 1997). State anger was also found to affect individual’s perceptions of and reactions to the violent film. Participants who reported feeling more angered at the time of testing were more inclined to be curious, absorbed and entertained by the violent stimuli. Findings of the correlational analyses also identified personality as impacting upon individual’s emotional response to filmed violence. Consistent with previous research, individuals scoring high on neuroticism reported a more aversive emotional response to the filmed violence experiencing greater levels of anxiety, disgust and anger than those who scored lower.

8.10.4 The effect of realism and fantasy content on emotional response.

The fifth hypothesis predicted that the realistic depiction of filmed violence would elicit a more aversive emotional reaction than the fantasised depiction. This hypothesis was supported by the present data. It was found that the realistic depiction of violence was rated as more anxiety provoking, disgusting and less entertaining than the fantasised depiction. In addition, participants reported greater anger in response to the realistic depiction of violent film than the fantasised portrayal. It appears as though the strong aversive feelings evoked by the realistic depiction of filmed violence minimised the experience of positive feelings. In comparison to the realistic portrayal, the fantasised depiction elicited more positive feelings for the respondents.

8.10.5 Summary

The current study provided data on the process of emotional habituation, specifically in response to a fantasised depiction of filmed violence. The study identified that repeated exposure to a fantasised depiction of filmed violence yielded habituation of both subjective and objective emotional response, which was recovered with the presentation of novel stimulation. Dishabituation was evidenced following reinstatement of the
original stimulus where emotional response was observed to be above the level obtained immediately prior to novel stimulation.

An analyses of individual differences on participants perceptions of and emotional response to a fantasiesed depiction of filmed violence identified a number of significant associations. State and trait anger were found to influence levels of curiosity, absorption, entertainment and anger, whilst the personality factor of neuroticism was associated with a more aversive response to the filmed violence.

Taken together the results of studies two and three indicate habituation of emotional response to both fantasiesed and realistic filmed violence. The effect of realism and fantasy remain to be seen. Comparative analyses identified, however, significant differences in emotional response between the contextual features of fantasy and realism. Significant differences emerged in subject’s self-reported emotional responses, specifically, in response to the realistic depiction participants reported greater anxiety, disgust and anger, less positive feelings and entertainment.
CHAPTER  9.

General Discussion and Conclusion

The studies in this thesis assessed the relationship between habituation of subjective emotional response to violent film, eyeblink startle response to white noise presented during film presentation, and the contextual features of realism and fantasy, whilst accounting for the mediating effects of individual differences. The major focus of the thesis was to examine the effect of repeated exposure to violent portrayals on viewers’ level of emotional arousal across time. Emotional response was assessed using both objective and subjective methods. An objective measure of emotional arousal was obtained by measuring the respondents’ eyeblink startle response. Respondents were required to subjectively self-report six emotional variables: disgust, positive feelings, entertainment, anxiety and anger. In addition, the effects of individual differences and personality were also examined. The individual differences examined in the current thesis were gender and state-trait levels of anger/aggression. Eyesenck’s three dimensions of personality, neuroticism, extraversion and psychoticism were explored to assess their moderating effect on individual’s subsequent emotional response to filmed violence.

In this section, a discussion regarding the practical utility of the eyeblink startle response to provide an objective measure of emotional reactivity to filmed violence will be considered first. Following this the findings of the studies relating to habituation of emotional response with a consideration of contextual features will be presented. A discussion regarding the implications of personality and individual differences as related to the findings will be offered. Finally, general limitations and future directions for examining the effects of filmed violence will be presented.
9.6 Assessment of Emotional Response: Objective and Subjective

In the current study, the startle eyeblink response was found to parallel the subjective emotional processing of the violent film stimulus. The eyeblink startle response was observed to be augmented when individuals were subjectively reporting aversive experiences to the filmed violence. It was found that the eyeblink startle to white noise was initially augmented when individuals began to watch the violent film. This pattern of response was noted to correspond with subjective self-reports of emotional response which indicated that respondents were experiencing high levels of anxiety and disgust. Furthermore the magnitude of the eyeblink startle response was observed to diminish across repeated exposure, consistent with subjective self-reported emotions. The introduction of the novel violent film stimulated both an increase in startle magnitude and self-reported aversive emotional response. Respondents reported less positive feelings, greater anxiety and disgust. Anxiety and disgust are “aversive” emotional responses, and their relationship with the eyeblink startle is consistent with the research of Lang et al., (1990).

Further consistency between the objective and subjective measures of emotional response were identified when examining the response patterns between genders. The augmentation of startle magnitude during violent film presentations was greater in female than male participants. The present data support research conducted previously suggesting that the eyeblink startle response represents a valid tool in the investigation of emotional reactions to a stimulus (Koukounas & McCabe, 2000; Lang, Bradley, & Cuthbert, 1990).

9.6 Habituation of Emotional Response to Filmed Violence

The results of the studies are consistent with the idea that repeated exposure to filmed violence decreases emotional arousal, thus demonstrating habituation. Support for the
prediction that repeated exposure to filmed violence would result in a decline in both objective and subjective emotional responses was supported by the current thesis. Repeated exposure to violent film yielded habituation of emotional response on each of the emotional variables under examination: disgust, positive feelings, entertained, anxiety, anger and startle as demonstrated by a decline in response recorded over the first three trial blocks. Introduction of a novel violent stimuli resulted in a recovery of emotional response, and reinstatement of the original stimulus lead to emotional response being above the level obtained prior to novel stimulation. The results of the current thesis provide additional support for the employment of the product-orientated paradigm to assess habituation of emotional response to filmed violence.

The interaction effects of gender and measurement time with each of the dependent variables was conducted and examined separately for both Studies 2 and 3. From these analyses only one significant interaction effect was identified. An examination of emotional response to a realistic depiction of filmed violence (Study 2) identified that gender significantly interacted with measurement time to influence the emotional response of anxiety. That is, there was a significant change in anxiety response over the 5 trial blocks with differing response styles between gender groups. Both male and female demonstrated habituation of emotional response across the first three trial blocks and recovery in response, however, with reintroduction of the original stimuli a dishabituation effect was identified for females but not for males. No other significant interactive effects were identified.

The findings of habituation of emotional response can potentially hold crucial implications for society. Research investigating the effects of lowered levels of physiolgocial and psychological arousal has indicated a latency of intervention when given an opportunity to respond to actual emergencies (Geen & Donnerstein, 1998;
Wilson et al., 1998). It would be interesting to monitor behavioural responses outside the laboratory setting after a participant has viewed violent film repeatedly, to identify if any behavioural effects of habituation of emotional response exist.

9.6 The Effect of Contextual Features on the Emotional Response

This thesis represented an attempt to focus on the qualitative attributes of violent portrayals that might modify the extent of impact on viewers. The dimension under examination was the reality versus fantasy quality of violence. Study two focused on examining individual’s emotional response to a realistic depiction of filmed violence. In an aim to identify the effect of contextual features on the emotional processing of filmed violence Study three represented an attempt to extend the findings to account for film stimulus whose content was defined as fantasy/non-realistic. Applying the identical research paradigm and structure as used in Study two, Study three assessed individuals emotional response to a violent stimuli with a fantasy/non-realistic content.

The results of Study two were replicated in Study three. Study three was conducted to examine individual’s emotional response to a portrayal of violence with a fantasy content/non-realistic depiction. The results of Study three were consistent with Study two. Study three identified that repeated exposure to filmed violence resulted in a gradual decline in both individuals self-reported and objective recordings of emotional response, demonstrating habituation of emotional response. Taken together, Studies two and three suggest that, irrespective of the presented contextual feature, individuals demonstrate habituation of emotional response.

Whilst habituation of emotional response was demonstrated for both film genres examined, comparative analysis identified that there were quantitative differences in the
emotional response between the two contextual features. The results of Studies two and three were consistent with previous research which reports that viewers tend to be more affected by violent scenes they consider as having actually happened than by incidents they perceive to be purely fictional (Atkin, 1989; Berkowitz, 1986; Gunter, 1983; Moore &Cokerton, 1996; Wilson et al, 1998).

Consistent with earlier research the results of the current studies confirm the proposition that viewers are more strongly affected by violent scenes they regard as realistic than by scenes they believe are fictional. It was found that the emotional reactions to realistic violent films were reported as more aversive than those to the fantasised content violent material. Participants responded with more anxiety, disgust and anger to the realistic films than the fantasised content clips, even though the latter also generated significant anxiety, disgust, and anger. The fantasised content film stimuli elicited more positive feelings and were reported to be more entertaining than the realistic depiction. A variety of psychological mechanisms can explain the greater effectiveness of violence that reflects the real world.

First, it must be recognised that, whilst the film stimuli were selected according to the content analysis framework established by Wilson et al., (1998) the assessment of reality or fantasised content was not entirely a property of the stimulus message, rather was defined according to the perception of the participants in the exploratory study. Two aspects of perceived reality can be distinguished: the degree to which the viewer perceives that the portrayed events, settings, and characters (a) truly did or could exist in the real world (perceived actuality), and (b) are similar to the viewer’s own contemporary social and physical environment (perceived similarity). These concepts of perceived actuality and similarity assist to understand the effects of filmed violence uncovered by the current thesis.
Particularly relevant to the current thesis is the concept of perceived similarity. Since most viewers consider themselves and their environments to be real, realistic portrayals of violence will be perceived to be more similar to the environment of audience members. This perception of similarity increases the likelihood of an aversive response in several ways. Berkowitz proposes that the degree of cognitive association between the contextual cues in mediated violence episodes and the observer’s own social context is a primary determinant of instigation to aggression and anger. A violent aggressor or vulnerable victim depicted in a realistic setting may remind the view of similar individuals in his/her social network or lead to greater character identification. An alternative explanation to the finding the viewers are more strongly affected by violent scenes they regard as realistic than by incidents they believe are fictional or otherwise unreal is provided by Wilson et al., (1998). Their observations and analyses identified that observers definition of the witnessed aggression as only fictitious seemed to distance them from the event psychologically so that it had less of an impact on them. The interpretation and awareness of an event as being fictitious seems to serve to distance audiences psychologically from the depicted events, thus preventing the activation of strong aggressive thoughts, feelings, and action tendencies.

The observation that the realistic depiction elicited stronger emotional responses than the fantasised depiction is consistent with arousal theories of violence (Atkins, 1983. Arousal theories of violence effects suggest that aggressive stimuli emotionally excite viewers and instigate previously learned patterns of response. The theory suggests that fictional presentations may be less emotionally arousing since viewers tend to “discount” the veracity of the portrayal; realistic presentations may attract more intense attention, involvement, and identification, and prolong the heightened state of
excitement. In addition, antisocial actions judged to be real may be perceived as more violent, resulting in stronger response to the message.

The results of the thesis highlight that the contextual features of realism and fantasy can help determine and affect the observers’ reactions. This confirms the idea that it is time for researchers to turn from the relatively simple question of whether exposure to violent scenes enhances the observers’ behavioural and psychological reactions to the far more complicated and more important problem of isolating the conditions under which such an effect is most likely to arise. Such systematic and structured research regarding the aforementioned factors (of context) are important considerations for international media regulatory organisations that assess potential harm to viewers (Federman, 1996).

In addition, these findings have important practical implications for the monitoring of violent content in that they indicate the need to apply different weightings of intensity or seriousness to violent portrayals. The Office of Film and Literature Classification within Australia have established a classification/censorship system, which currently groups violent material broadly utilising the “Restricted” certificate for violence. Findings of the current thesis suggest that, in order to effectively advise the Australian population, this classificatory system may require revision to accommodate and account for the effect of contextual features. The current single normative definition of violence, which weighs all portrayals as equally violent, does not reflect even remotely the way film violence is interpreted by the audience. A classificatory framework is required which takes into account the most salient features of portrayals for the audience when categorising program content as serious. An important aspect of content control, especially for a system of censorship based on audience perceptions, is the extent to which viewers differ in their perceptions of violent portrayals.
9.4 Impact of Gender and Individual Differences

The findings of the current thesis found clear gender differences in the emotional processing and response to violent film stimuli. Furthermore, it was observed that these gender differences were observed at both the physiological and subjective level. Consistent with prior research it was identified that females responded initially with more intense psychological and physiological reactions than did males, and this pattern of response was observed across the entire testing period. More specifically, females responses suggested that they reacted in a more aversive way to the violent film stimuli consistently reporting higher levels of disgust, anxiety and anger.

Consistent with previous research the personality variables assessed were identified to affect viewers’ perceptions of and emotional reactions to filmed violence (Gunter & Furnham, 1983: Gunter, 1985). In both studies, a high score on neuroticism was correlated with reports of greater anger, anxiety and less positive feelings whilst viewing the violent film than was a low score. This suggests that emotionally sensitive individuals have a more aversive emotional response to filmed violence. The reason that personality variables influenced emotional reponse cannot be ascertained without further investigation.

9.5 General Limitations and Suggestions for Future Research

Probably the foremost limitation lies in various shortcomings of the stimulus materials. There were problems inherent in the design of the studies due to the stimuli materials used. For instance, there was an absence of violent female role models in the movies shown to the respondents, and the involved parties were not balanced with regard to their genders. Future investigations should explore the impact of stimuli involving violent female protagonists on the thoughts and actions of both female and male
consumers. This is considered particularly important, increasingly violent media and film are portraying more female heroines that employ aggression to resolve conflicts (Kiewitz & Weaver, 2001).

Furthermore, the realistic scenario adopted in Study two which assessed habituation of emotional variables to a realistic depiction of violence depicts an image of a women being physically and verbally perpetrated by her partner. There could have existed the potential for the female respondents to identify with the victim, thus serving to perpetuate the experience as aversive. It would be relevant for future research to operationally manipulate individual differences as independent variables (e.g. identification with the target of violence) as suggested by Sheehan (1997).

In addition, the violent film scenarios employed in Studies two and three lack coherence regarding the amount and type of violence exerted upon the victims. To rectify the design limitations of the studies future investigations might consider to better control for the type and severity of violence incorporated in the stimulus material.

Furthermore, the current study assessed the effect of a single contextual feature, the effect of realism on individuals’ subsequent emotional response to filmed violence. As the current literature documents that there are nine different contextual features, which can have important influences on audience reactions, the design of the thesis studies could be expanded to include assessment of the remaining eight contextual features. The current research establishes that the realistic portrayal of film violence elicited a more aversive emotional reaction than the fantasised (non-realistic) content stimuli. Therefore, a limitation to the current thesis is that the experimental study conducted tested the contextual feature of realism in isolation. Subsequently, the current thesis is
unable to provide information about how the various contextual factors might interact with one another. Future studies could examine several contextual features collectively to detail the effect on emotional response and potential risks for the audience.

Until recently, the majority of the research regarding the effect of filmed violence have been behavioural, that is, it has focused on responses that are outwardly observable (Walsh, 2000). The current thesis has moved beyond measuring the observable to explore the unobservable process of emotional habituation. Assessment of emotional reactivity to the filmed violence was conducted at both a psychological and physiological level. This research exploring physiologic changes in response requires greater depth and exploration as little research has assessed brain activity. Given the advances in neuroscience, imaging techniques, and hormonal and neurotransmitter measures, the logical next frontier examining the effects of violence leads to biologically based research. Based on this limitation the goal of future studies would be to examine the neural circuits that subserve emotion, emotional regulation and emotional memory.

These conclusions drawn from the current thesis are specific to the culture from which the present respondents were drawn, Australia, and could certainly vary in a different cultural context. The sample used in the present thesis was one of convenience, consisting solely of students from Deakin University. Consequently the findings from the current thesis cannot be generalised beyond tertiary educated Caucasian samples. It is important, therefore, to consider the similarities and differences between the Australian media system and others. In doing so, lessons can be learnt about the methods other societies have addressed, issues and learn from both their mistakes and successes.
An additional limitation in the current thesis is the nature of the correlational findings regarding important individual differences. Whilst this thesis provides corroborating evidence documenting the importance of individual differences, there remains a need to further explore and replicate these findings. Causality cannot be determined, consequently the result should be regarded as trends that warrant further investigation with a more stringent design.

One limitation of the current investigation is the inability to comment on the external conditions which influencing reactions to observed violence. The experimental studies reported in this thesis examined the emotional responses of isolated individuals to filmed violence. However, as Pennell and Browne (1999) have pointed out most exposures to depictions of violence in the “real world” occur in a social context in which the viewers are accompanied by other people. Subsequently, the thesis is unable to ascertain how this surrounding audience influences the individual’s reaction. The current study is, therefore, limited in its ability to generalise from the experimental laboratory to natural settings. Additionally, sample sizes in each of the studies was low. The recruited samples consisted of 15 men and 15 women in Study one, 14 men and 16 women in Study two, and 15 men and 15 women in Study three. The nature of the thesis studies and the difficulties in recruitment of subjects, which is inherited in psychophysiological studies, needs to be addressed in future studies due to the potential implication of low power. Future studies need to employ larger samples to increase the power, thus ensure the results can be more broadly generalised.

9.6 Conclusion

The aim of this thesis was to examine the relationship between viewing filmed violence and the habituation of subjective and objective emotional response. An experimental content was utilised to allow for the measurement of psychological and physiological
responses to filmed violence. Whilst habituation of emotional response to filmed violence was identified, consideration of factors such as contextual features and individual differences were found to influence emotional arousal (Blanchard, Graczy & Blanchard, 1986; Bushman & Geen, 1990; Frost & Stauffer, 1987; Kiewitz & Weaver, 2001; Koukounas & McCabe, 2001). The contextual features under examination, realism and fantasy, were identified to affect individuals’ level of emotional arousal. The realistic depiction of violence was reported to be more emotionally arousing the fantasised content depiction. These findings of contextual features from the current thesis have important implications for international media regulatory organizations that assess potential harm to viewers.

The results of the thesis studies also indicate that researchers examining behavioural and psychological responses to filmed violence need to consider the effect of gender (Koukounas & McCabe, 2001), and personality (Zillman & Weaver, 1997). There was evidence that men and women responded to violent film differently. Compared to men, women reported a more aversive response to the violent films, specifically experiencing more disgust, anger and anxiety. Furthermore, personality type was observed to be a factor in how arousing individuals perceive scenes of violence. Regardless of film genre, individuals who scored high on a measure of neuroticism were more likely to rate the violent materials as more disgusting, anxiety and anger provoking than those who scored lower.

In conclusion, the results of this thesis have extended the investigation into the effects of filmed violence to allow for the psychological and physiological assessment of emotional arousal. The approach adopted for the current thesis is representative of a current trend toward more complex explanatory models of social behaviour. This thesis demonstrated habituation of emotional response to film stimuli presented repeatedly.
The results of the thesis provide further support for the view that the effects from
viewing violence are not uniform across all possible examples of violent depictions.
Finally, the results indicate that other areas of influence, individual differences and
personality, studied in the context of filmed violence are worthy of further scrutiny and
analysis.
References


www.media-awareness.ca accessed 02/05/2000
APPENDIX A

Assessment Response Sheet

~ Study One
Gender: ____________
Age: ____________

Assessment Response Sheet

All ratings are to be made using the following 5-point scale:

1  2  3  4  5
Not at all  A bit  A reasonable  A lot  Extremely
amount

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<th>Film Stimuli</th>
<th>Violent</th>
<th>Realistic</th>
<th>Comments</th>
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<tr>
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<td>Fight club</td>
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<td>Life is beautiful</td>
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APPENDIX B

Deakin University Ethics Approval
MEMORANDUM

TO: Ms Melissa White
    Psychology
    Melbourne

FROM: Secretary, Deakin University Human Research Ethics Committee (DUHREC)

DATE: 14 September 2001

SUBJECT: PROJECT: EC 85-2001
          EMOTIONAL HABITUATION TO FILMED VIOLENCE EMPLOYING THE STARTLE RESPONSE

(Please quote this project number in future communication.)

This application was considered and conditionally approved by the Committee on 25 June 2001.

APPROVAL HAS BEEN GIVEN FOR MELISSA WHITE, UNDER THE SUPERVISION OF DR ERIC KOUKOUNAS TO UNDERTAKE THIS PROJECT.

Approval has been confirmed for this project in line with the decision of the DU-HREC on 25 June 2001.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the application and approval. It is your responsibility to contact the Secretary immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

[Signature]
Victoria Emery
Secretary, DU-HREC
(03) 9251 7123
vemery@deakin.edu.au
APPENDIX C

Plain Language Statement
DEAKIN UNIVERSITY ETHICS COMMITTEE
PLAIN LANGUAGE STATEMENT

My name is Melissa White and I am currently enrolled in and completing the Doctorate of Psychology Degree in the School of Psychology at Deakin University. One of the requirements to receive this academic qualification is the completion of a research thesis, which I am inviting you to participate in.

In my study I am interested in your emotional response to violent film stimuli. This research is being conducted under the supervision of Dr Eric Koukounas, a lecturer in the School of Psychology. If you agree to participate, you will be asked to view film segments. The film segments will depict various acts of violent behaviour such as fighting, stabbing, and shooting, and various nonviolent scenes depicting flowers, trees, and sunsets. Completion of the study will take no more than 90 minutes. You will be asked to rate your level of emotions and feelings whilst viewing the violent film. In addition you will also have your eyeblink startle reflect assessed through two electrodes placed around one of your eyes. At all times during the experimental procedure, the experimenter will be in a different room, and will be monitoring your physiological responses only through readings on the equipment.

You are free to withdraw at any time during the study in which event your participation in the research study will immediately cease and any information obtained will not be used, rather it will be destroyed or returned. In completing this study, it is important that participants understand that I am interested in your own unique experiences and responses and that there is no such thing as a right or wrong answer. If at any time you become disturbed by any aspect of the study, you may contact Student Services on 9244 6300 for counselling.

Your responses and participation in this study are completely anonymous and your confidentiality is guaranteed. The identifiable consent forms will be stored separately to the encoded data collected. The gathered data will be secured in accordance with Deakin University guidelines, which require data to be stored for a period of six years in a locked filing cabinet. Following this time the data will be destroyed.

Please ensure that the attached consent form is signed prior to commencement of the study. Thankyou for your interest in reading about this study.

If you have any further queries about the study you may contact Melissa White on 9251 7499 or Dr. Koukounas on 9244 6855.

Should you have any concerns about the conduct of this research project, please contact the Secretary, Ethics Committee, Research Services, Deakin University, 221 Burwood Highway, BURWOOD VIC 3125. Tel (03) 9251 7123 (International +61 3 9251 7123).

jb25 DUEC Application Form (Minor Revision 2/11/98)
APPENDIX D

Consent Form
DEAKIN UNIVERSITY ETHICS COMMITTEE
CONSENT FORM:

I, ____________________________

Hereby consent to be a subject of a human research study to be undertaken by Melissa White

and I understand that the purpose of the research is to examine the relationship between film violence, the

iatuation of emotional responses, as measured by the eyeblink startle response, and the impact of gender.

I acknowledge and have been made aware that all information provided by myself will be treated as confidential,

and that no identifying information will be recorded on the battery of questionnaires I complete as part of this

study.

I acknowledge

1. That the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.

2. That I voluntarily and freely give my consent to my participation in such research study.

3. I understand that aggregated results will be used for research purposes and may be reported in scientific and academic journals.

4. Individual results will not be released to any person except at my request and on my authorisation.

5. That I am free to withdraw my consent at any time during the study, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.

Signature: ____________________________ Date: ____________________________

NOTE: In the event of a minor's consent, or person under legal liability, please complete the Ethics Committee's "Form of Consent on Behalf of a Minor or Dependent Person".
APPENDIX E

Standardised Instructions
ASSESSMENT OF RESPONSE TO VIOLENT FILM

Test-Sessions Instructions:

Upon arrival at the laboratory for the experimental session, each subject will be given the following instructions:

This experiment is a study of the emotional and physiological responses to violent film stimulation. The whole experiment will take about one hour. You will be asked to view and rate a series of violent and neutral film segments. All types of responses are equally valid. During the film segments, you are to try to imagine that you are actually there, experiencing the situation. Focus on what is being portrayed. Don't think about activities other than those in the film segment. You are engaging in the violent acts depicted. Become absorbed into the situation. That is, emerse yourself into the situation portrayed to the exclusion of things happening around you. Concentrate not only on visualizing the scene, but on your other senses as well.

Each film segment will be presented for two minutes. There will be a period of two minutes blank space between these film segments during which you will be required to rate the preceding film on several aspects. All ratings will be made using the following 5-point scale:

1 ———— 2 ———— 3 ———— 4 ———— 5
Not at all A bit A reasonable amount A lot Extremely

After each film segment, you will be requested to rate your level of response to the segment and the extent to which you absorbed yourself into the activity presented. Remember, absorption refers to the extent to which you can emerse yourself into the activities portrayed in the film to the exclusion of what else is happening around you. You will also be asked to rate such things as your positive emotions and anxiety experienced during the film.

A sheet of paper has been placed in front of you which covers all the emotional experiences you will be asked to rate. After each film segment, please call out your ratings into the microphone above you by calling out category (e.g., anxiety) and then the associated rating out of five (e.g., 4). You can use any numbers between 1 and 5 for your ratings. After you have finished rating each film segment, you will be asked what it was about the film which caused your reaction (actors' physical appearance, activities portrayed, setting, actors' responses).

Apart from you reading out your ratings, there will be no other communication between us during the experimental session. I will be in another room. I will be able to hear what you say, but I will not be able to see you during the testing session.
APPENDIX F

Syntax File
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/DESIGN = gender .
APPENDIX G

Advertisement
School of Psychology - Doctoral Thesis
Research Participants required to investigate...

The relationship between film violence and emotional response.

Volunteers aged between 18 and 30 years of age are wanted for participation in research in the School of Psychology concerned with individuals emotional responses to filmed violence. This research, which has been approved by the Deakin University Ethics Committee, requires you to watch various film segments and rate your level of emotions and feelings whilst viewing the film. In addition, you will have your eyeblink startle assessed through two electrodes placed around one of your eyes. You will not have to commit yourself to participation before discussing the procedures involved in the research with the experimenter.

If you have any further queries about the study you may contact Melissa White on 9251 7499.